DRAFT

AIR QUALITY ANALYSIS
LONG BEACH DOWNTOWN COMMUNITY PLAN
LONG BEACH, CALIFORNIA

Prepared for:

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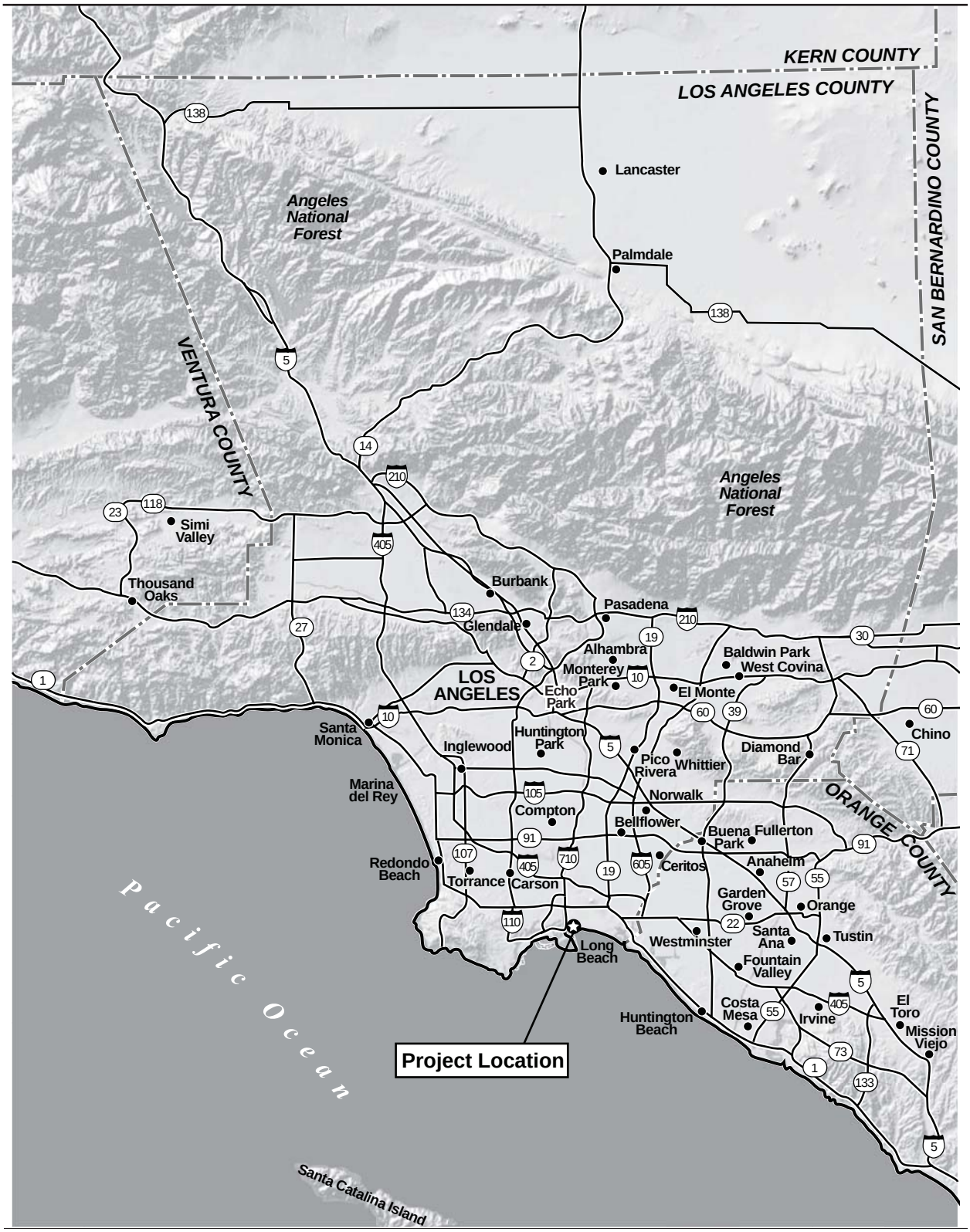
CHAPTER 1.0
INTRODUCTION

The proposed project is the adoption and implementation of the Long Beach Downtown Community Plan (Community Plan) that would replace the existing land use, zoning, and planned development districts as the land use and design document for all future development in the proposed Community Plan area. The Community Plan incorporates zoning, development standards, and design guidelines to be followed in implementing the Community Plan. Full implementation of the Community Plan would increase the density and intensity of existing Downtown land uses by allowing up to approximately 5,000 new residential units; 1.5 million square feet of new office, civic, cultural, and similar uses; 384,000 square feet of new retail; 96,000 square feet of restaurants; and 800 new hotel rooms. The additional development assumed in the Community Plan would occur over a 25-year period.

The proposed Community Plan would encompass an area bounded by the Los Angeles River on the west and Ocean Boulevard on the south. The north boundary generally follows portions of 7th and 10th streets, and the east boundary includes land on both sides of Alamitos Avenue. A regional map and a vicinity map of the project area are provided as Figures 1 and 2, respectively.

The purpose of this air quality report is to describe the existing air quality conditions in the project area, identify applicable regulations, and determine potential short-term and long-term air quality impacts due to the implementation of the Community Plan. The methods of analysis for short-term construction, long-term regional (operational), local mobile source, odors, and toxic air contaminant (TAC) emissions are consistent with the recommendations of the South Coast Air Quality Management District (SCAQMD). Mitigation measures are recommended, as necessary, to reduce significant air quality impacts.



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1" = 16 Miles

Figure 1
Regional Map

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Figure 2
Vicinity Map

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CHAPTER 2.0
PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The proposed project is located in the City of Long Beach (City) in Los Angeles County, California. The Community Plan would encompass an area of approximately 667 acres bounded by the Los Angeles River on the west and Ocean Boulevard on the south. The north boundary generally follows portions of 7th and 10th streets, and the east boundary includes land on both sides of Alamitos Avenue. The regional location and local vicinity of the project area are depicted in Figure 1 and Figure 2, respectively. Figure 3 is an aerial photograph of the Community Plan Area and surrounding area.

For purposes of air quality evaluation, the project area is located in the South Coast Air Basin (Basin), which includes all of Orange County and parts of Los Angeles, Riverside, and San Bernardino counties.

2.2 PROJECT DESCRIPTION

The proposed project is the adoption and implementation of the Community Plan to replace the existing land use plans and zoning regulations for the proposed Community Plan area. The Community Plan incorporates zoning, development standards, and design guidelines that are required of all new development in the Community Plan area.

2.2.1 Proposed Land Uses

Land Use Designations

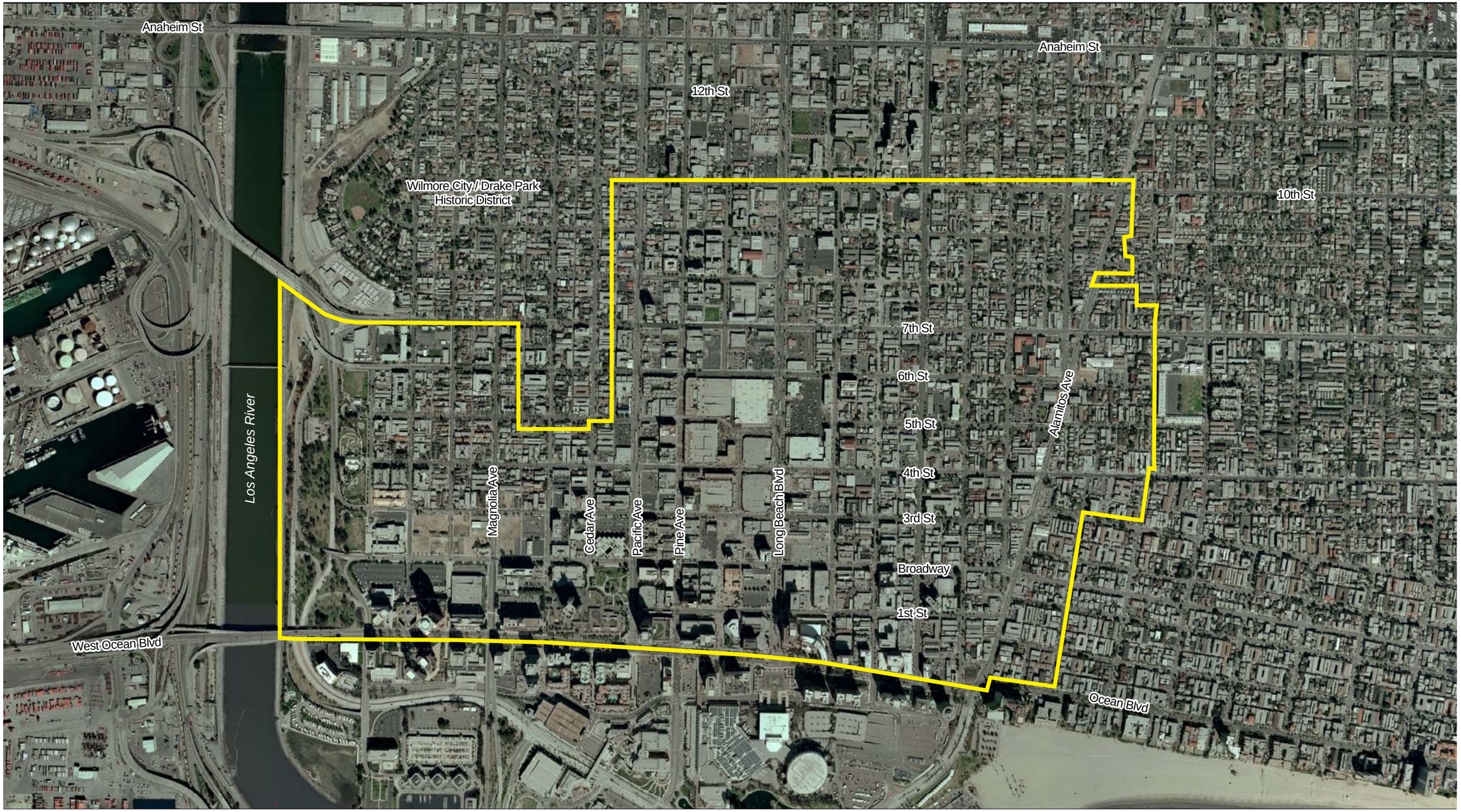
The Community Plan proposes to establish two land use districts: the Downtown General District (District) and the Downtown Neighborhood Overlay (Overlay) with the intent of providing additional housing, employment, shopping, and entertainment opportunities while preserving intact residential neighborhoods that provide a wide mix of historic and more recent housing types. The District and the Overlay would be supplemented by designating certain main and secondary streets where pedestrian-oriented uses are required to be located on ground-floor street fronts. The Development Standards section of the Community Plan lists uses that are

permitted in each of the two districts, uses requiring conditional or administrative use permits, accessory and temporary uses, and prohibited uses.

Downtown-General District. The Downtown-General District encompasses the entire Community Plan area. It is intended to accommodate mid- and high-rise residential development, financial and professional offices; personal services facilities; hotels and motels; and retail, cultural, entertainment, and dining destinations. Most automotive-related uses are prohibited or require special review through a conditional or administrative use permit. Single-family residences would not be permitted within the District unless located within the Overlay.

Downtown Neighborhood Overlay. The Overlay is established to ensure that primarily residential uses are maintained within specific areas. The Overlay is intended to preserve a range of housing types at lower densities that are within walking distance of employment and services available within Downtown's commercial core. In addition to residential uses, other uses permitted in the Overlay include shopkeeper or artist studios accessory to residential use, day care or pre-school up to 14 children, flower stand or newsstand, and park or community gardens. Most neighborhood-serving commercial uses would require an administrative use permit, such as for restaurants, retail sales, dry cleaners, professional and medical offices, barber/beauty shops, small appliance and bicycle repair, and pet grooming. Uses that would require a conditional use permit in the Overlay include on- and off-premise alcoholic beverage sales, motorcycle/scooter sales, internet cafés, live or movie theaters (less than 100 seats only), fitness centers or dance studios, laundromats, churches, schools, and youth hostels.

Additional Zoning Standards: Pedestrian-Oriented Uses. In areas designated as main streets, a minimum of 80 percent of the ground-floor street fronts are required to contain active uses such as restaurants and on-premise alcoholic beverage sales; retail sales; dry cleaners; banks; professional and medical offices; barber/beauty shops; small appliance and bicycle repair; pet grooming; computer arcade or internet cafés; live or movie theaters; clubs and pool halls; financial, professional, and personal services; fitness centers or dance studios; churches; museums; and business schools. In areas designated as secondary streets, 60 percent of the ground-floor street fronts are required to contain these active uses. Percentages would be based on building frontage and determined on a parcel-by-parcel basis. Proposed uses would also be required to conform to the list of uses allowed in the District or Overlay.



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Scale: 1:10,800; 1 inch = 900 feet

Figure 3
Aerial Photograph of Community Plan Area

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Project Objectives

The purpose of the Community Plan is to replace the existing planned development zoning for the Community Plan area and provide more up-to-date guidance to respond to Downtown's current development context and trends; and to provide direction regarding the type, character, and standard of quality desired for development in the Downtown area. As described in the proposed Community Plan, the guiding principles include:

- **Promote the development of a distinctive Downtown skyline and a vibrant, compact city core attracting cosmopolitan and creative people.** An intense and attractive Downtown is key to developing a vibrant city center and minimizing growth pressures on surrounding existing mature neighborhoods. The increased residential population and the mix of uses envisioned by the Community Plan, as well as the walkability, connectivity, and the convenience of transit, will contribute to Downtown's vitality by offering easy access to business, shopping, cultural attractions, and residences.
- **Position Downtown as the lively heart of the city, connecting with neighborhoods and the coastline.** Downtown Long Beach is the heart of Long Beach and its commercial, civic, and tourism center. With a strong historic street grid, and a rich multimodal transit system, the Community Plan will maintain and strengthen connections to surrounding neighborhoods, the region, and the waterfront.
- **Develop in a way that is less dependent on fossil fuels and more focused on walking, bicycling, and public transportation.** The Community Plan intends to build upon concepts of smart growth to position Downtown as a pedestrian-friendly mixed-use center. Walkable and bicycle-friendly streets and development, accessible transit, and pedestrian-oriented uses are all crucial ingredients for creating a vibrant mixed-use community that allows people to live, work, and play within the Downtown area.
- **Support new industries to continue to diversify the economy and promote job growth while strengthening the existing backbone of convention, tourism, and port businesses.** The Community Plan encourages a range of uses to support a diverse economy and a wealth of jobs and housing in Downtown, while continuing to support the hub of convention, tourist, and port activity for which Long Beach is known.
- **Encourage bold architecture, planning, and construction utilizing green building technology and incorporating sustainable energy.** Well-designed buildings are the foundation for achieving great streets and neighborhoods. The Community Plan encourages innovative buildings that are urban in nature, with high-quality materials and

designs. The Community Plan encourages the integration of green building design and energy efficiency.

- **Demand quality in building practices in order to ultimately create historical masterpieces.** The design of new development projects should attempt to distinguish their own place in time and ultimately achieve the same level of distinction as past eras without replication. The Community Plan calls for the use of best practices for high-quality design and construction.
- **Value buildings of historic merit and seek to preserve or restore them through adaptive reuse.** Downtown Long Beach is composed of buildings that reflect a rich history and a range of architectural periods, from Craftsman to Spanish, and Art Deco to Modern. All of these styles represent design innovations and a distinct place in the history of Long Beach. The Community Plan encourages the adaptive reuse and preservation of these buildings.
- **Include the best aspects of an innovative global city: dynamic architecture, strong public spaces and open space, celebration of this unique culture, and respect for the natural environment.** Downtown Long Beach will provide an intense, yet livable environment. The Community Plan provides direction for incorporating open space within new development, and strengthening and respecting the character of existing places and neighborhoods while encouraging innovative new development.

2.3 EXISTING SITE SETTING

Project Area

Ocean Boulevard marks the south boundary of the proposed Community Plan and is also the north boundary of the California Coastal Zone. Land uses located along the south side of Ocean Boulevard are high-density residential, mixed-use retail and residential, and financial institutions. South of these uses are visitor-serving facilities, including the Aquarium of the Pacific, Long Beach Convention Center, Performing Arts Center, and Long Beach Arena. The Pike at Rainbow Harbor and Shoreline Village shopping, dining and entertainment areas; and hotels, recreational facilities, parks, beaches, and marinas are also located in this waterfront district.

Land uses to the north of the Community Plan area, generally between Pine and Atlantic avenues, are primarily commercial, hospital and medical services, multi-family residential, schools, and churches. Northeast of 10th Street and Atlantic Avenue, land uses are primarily a

mix of single-family and low-rise multi-family. The Willmore City/Drake Park Historic District abuts the project area to the northwest and primarily contains older single-family homes and multi-family residences.

Land uses to the east are primarily a mix of single-family and low-rise multi-family residences and also include retail and restaurant uses along the main commercial corridors of 7th and 4th streets and Broadway. The Los Angeles River channel borders the project area on the west.

Project Area

The project area contains a variety of commercial, residential, civic, and cultural uses that exist within six unique "character areas." Each of these areas has unique characteristics and contains a variety of residential, commercial, and civic uses that are not strictly contained within distinct land use districts.

Business and Entertainment Area. This commercial core of Downtown Long Beach is generally located between Pacific Avenue and Elm Avenue, extending from Ocean Boulevard north to 6th Street and contains modern office buildings, hotels, retail, and night spots, and includes Long Beach City Place, a mixed-use area of high-density residential, shopping, and entertainment venues. The Metro Blue Line fixed-rail transit service loops through this area as do several Long Beach Transit and Metro bus routes.

North Pine. The northern portion of Pine Avenue is a residential neighborhood character and contains newer mid-rise condominiums, older one- and two-story apartment buildings, and single-family homes. Neighborhood services such as markets, drug stores, restaurants, and other commercial uses are also located in this area, as are schools and churches. Saint Mary's Medical Center is located just north of 10th Street and several affiliated medical buildings and other medical service facilities are located within the project area south of 10th Street.

Civic Center. The Long Beach Civic Center, public library, and Lincoln Park anchor this area located on the north side of Ocean Boulevard, west of Pacific Avenue, east of Golden Shore Drive, and south of Broadway. Also located in this area are the Long Beach Graduate Campuses of Pepperdine University, the Marriott and Hilton hotels, and World Trade Center Long Beach. Several bank and office buildings are also located along both sides of this portion of Ocean Boulevard.

West End. The West End is located at the west side of Downtown, east of the I-710 freeway, north of Broadway, and south of 7th Street. This area is defined by low-rise, single- and multi-family residential uses and churches and schools. Several newer mid-rise multi-family residences are located north of Broadway along Maine and Golden avenues, and Cesar Chavez Park is located west of Golden Avenue. A bed and breakfast inn and a boutique hotel are also located in the West End.

Willmore Historic District. This historic district, which includes the Drake Park neighborhood, features residences from the early 1900s and tree-lined streets. Most of this historic district is located off-site to the northwest of the Community Plan area. The southern boundary of this district extends into the project area along 4th Street and on Magnolia Avenue and Crystal Court. The eastern historic district boundary is Pacific Avenue.

East Village. East Village is the area from Ocean Boulevard to 3rd Street and from Elm Avenue to Alamitos Avenue. This neighborhood consists of privately owned businesses, galleries, and shops. Low- and mid-rise apartment buildings provide most of the housing in this area, which also contains many tourist motels, several schools and churches, and neighborhood-serving markets and eateries.

2.4 SENSITIVE RECEPTORS

Some members of the population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. These people include children, the elderly, persons with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather are defined as sensitive receptors by SCAQMD.

Residential areas are considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

Existing sensitive receptors in the vicinity of the project area include all residential land uses, schools, hospitals, and medical centers within and adjacent to the Community Plan area. It is likely that some phases of the Community Plan would be built out while construction of other phases continues. Therefore, residents and occupants of land uses developed as part of the Community Plan could be exposed to emissions from ongoing development and would be considered sensitive receptors.

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CHAPTER 3.0
AIR POLLUTANTS

Concentrations of the following air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less (PM_{10}), fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead are used as indicators of ambient air quality conditions. These air pollutants are commonly referred to as "criteria air pollutants" because the U.S. Environmental Protection Agency (EPA) regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. These air pollutants are the most prevalent air pollutants known to be deleterious to human health, and there is extensive documentation available on health effects of these pollutants.

A brief description of each criteria air pollutant, including source types, health effects, and future trends, is provided below along with the most current attainment area designations and monitoring data for the project area and vicinity.

3.1 OZONE

Ozone is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and the primary component of smog. Ozone is not emitted directly into the air but is formed through complex chemical reactions between precursor emissions of reactive organic gases (ROG) and oxides of nitrogen (NO_X) in the presence of sunlight. ROG are volatile organic compounds (VOCs) that are photochemically reactive. It should be noted that the ROG designation includes more chemical compounds than the VOC designation. For purposes of this analysis ROG and VOC are equivalent and are used interchangeably. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for ozone formation. As

a result, observed ozone concentrations are highest during the summer season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that often affects large areas. In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry (Godish 2004).

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthmatics and children, but healthy adults as well. Exposure to ambient levels of ozone ranging from 0.10 to 0.40 part per million (ppm) for 1 or 2 hours has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes, and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to symptomatic responses that include such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to the above adverse health effects, evidence also exists relating ozone exposure to an increase in the permeability of respiratory epithelia; such increased permeability leads to an increase in the respiratory system's responsiveness to challenges and the interference or inhibition of the immune system's ability to defend against infection (Godish 2004).

Ozone air quality in the Basin has improved substantially over the last 30 years. During the 1960s, maximum 1-hour concentrations were above 0.60 ppm. Today, the maximum measured concentrations are less than one-third of that. The 2007 peak 8-hour indicator value was 42 percent lower than the 1988 value. The 3-year average in 2008 of the maximum 8-hour concentration was over 41 percent lower than 1990. The number of days above the standards has also declined dramatically, and the trend for 1-hour ozone is similar to that for 8-hour ozone (ARB 2009a).

Although ozone has improved substantially over time, progress has leveled off during the last several years. This may be attributable to changes in the mix and reactivity of precursor emissions in the Basin. While the basinwide trends show a slower rate of improvement during recent years, progress in some subregions of the Basin (for example, the coastal area and some of the inland valley areas) is still occurring. Continuing implementation of the aggressive emissions control measures will ensure continued progress throughout the Basin (ARB 2009a).

3.2 CARBON MONOXIDE (CO)

CO is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 77 percent of all CO emissions

nationwide. The other 23 percent consists of CO emissions from wood-burning stoves, incinerators, and industrial sources. Higher levels of CO generally occur in areas with heavy traffic congestion. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are sources of CO indoors. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air (EPA 2009a).

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2009a).

The highest CO concentrations are generally associated with cold, stagnant weather conditions that occur during the winter. In contrast to ozone, which tends to be a regional pollutant, CO tends to cause localized problems.

3.3 NITROGEN DIOXIDE (NO_2)

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal-combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2 (EPA 2009a). The combined emissions of NO and NO_2 are referred to as NO_X, which are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation, during or shortly after exposure.

After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO_2 intoxication after acute exposure has been linked on occasion with prolonged respiratory impairment, with such symptoms as chronic bronchitis and decreased lung functions.

3.4 PARTICULATE MATTER

Respirable particulate matter with an aerodynamic diameter of 10 microns or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust; and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROG (EPA 2009a). $PM_{2.5}$ includes a subgroup of finer particles that have an aerodynamic diameter of 2.5 microns or less (ARB 2009a).

The adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter. For example, health effects may be associated with adsorption of metals, polycyclic aromatic hydrocarbons, and other toxic substances onto fine particulate matter (which is referred to as the "piggybacking effect"), or with fine dust particles of silica or asbestos. Generally, adverse health effects associated with PM_{10} may result from both short-term and long-term exposure to elevated concentrations and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (EPA 2009a). $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and contain substances that are particularly harmful to human health.

Direct emissions of PM_{10} have been increasing in the Basin since 1975. A decrease in emissions would have been observed, if not for growth in emissions from areawide sources, primarily fugitive dust from paved and unpaved roads, dust from construction and demolition operations, and other sources. The increase in activity of these areawide sources reflects the increased growth and vehicle miles traveled in the Basin (ARB 2009a).

PM_{10} concentrations in the Basin have shown an improvement during the years for which reliable data are available. The 3-year average of the annual average decreased about 35 percent from 1989 to 2007. Despite the overall decrease, ambient concentrations still exceed the state annual and 24-hour PM_{10} standards. Similar to the ambient concentrations, the calculated number of days above the 24-hour PM_{10} standards has also shown an overall drop. During 1989, there

were 305 calculated days above the state standard and 34 calculated days above the national standard. By 2007, there were 273 calculated state standard exceedance days and 13 national standard exceedance days. The high 24-hour concentration in 2007 was due to a national windblown dust event. Despite these decreases, PM_{10} continues to pose an issue in the Basin. While emission controls implemented for ozone will also benefit PM_{10}, more controls aimed specifically at reducing PM_{10} will be needed to reach attainment (ARB 2009a).

Direct emissions of $PM_{2.5}$ have decreased slightly in the Basin since 1975. Stationary source emissions have been decreasing, while areawide emissions have been increasing. Annual average $PM_{2.5}$ concentrations have decreased over 37 percent from 1999 to 2007. The 98th percentile of 24-hour $PM_{2.5}$ concentrations has also declined during this time period (ARB 2009a).

3.5 SULFUR DIOXIDE (SO_2)

SO_2 is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. SO_2 is a respiratory irritant with constriction of the bronchioles occurring with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis.

3.6 LEAD

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, as discussed in detail below, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. EPA banned the use of leaded gasoline in highway vehicles in December 1995 (EPA 2009a).

As a result of EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Transportation sources, primarily airplanes, now contribute only 13 percent of lead emissions. A recent National Health and Nutrition Examination Survey reported a 78 percent decrease in the levels of lead in people's blood between 1976 and 1991. This substantial decline can be attributed to the move from leaded to unleaded gasoline (EPA 2009a).

Lead emissions and ambient lead concentrations have decreased dramatically in California over the past 25 years. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent California Air Resources Board (ARB) regulations have eliminated virtually all lead from gasoline now sold in California. All areas of the state are currently designated as attainment for the state lead standard (EPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, ARB has identified lead as a TAC.

3.7 TOXIC AIR CONTAMINANTS

TACs are air pollutants that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air. However, their high toxicity or health risk may pose a threat to public health even at low concentrations. According to *The California Almanac of Emissions and Air Quality*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel PM) (ARB 2009a). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal-combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, ARB has made preliminary concentration estimates based on a particulate matter exposure method. This method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies on chemical speciation to estimate concentrations of diesel PM. Of the TACs for which data are available in California, diesel PM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing ambient risks.

Diesel PM poses the greatest health risk among these 10 TACs. Based on receptor modeling techniques, ARB estimated the diesel PM health risk in the Basin in 2000 to be 720 excess cancer cases per million people. Although the health risk is higher than the statewide average, it represents a 33 percent drop between 1990 and 2000 (ARB 2009a).

A list of existing stationary sources of TACs within 5 miles of the project area is provided in Table 1 (ARB 2010a). In addition, the Port of Long Beach (POLB) represents a source of TACs. The emission sources associated with ports include diesel engine-powered ocean-going ships, harbor craft, cargo handling equipment, trucks, and locomotives. Vehicles on Magnolia Avenue, 6th Street, 7th Street, Ocean Boulevard, Pacific Avenue, Pine Avenue, Long Beach Boulevard, Alamitos Avenue, Anaheim Street, and other roadways in the project area are sources of diesel PM and other TACs associated with vehicle exhaust.

Table 1
Stationary Sources of Toxic Air Contaminants within 5 miles of Project Area

Facility Name	Facility Type
LA City, DWP Haynes Generating Station	Electric, Gas, Sanitary Services
AES Alamitos, LLC	Electric, Gas, Sanitary Services
Long Beach Generation LLC	Electric, Gas, Sanitary Services
US Borax Inc.	Chemicals and Allied Products
LA City, DWP Harbor Generating Station	Electric, Gas, Sanitary Services
Conoco Phillips - Formerly Tosco Refining Company	Petroleum and Coal Products
Arco CQC Kiln	Fabricated Metal Products
Valero - Formerly Ultramar Inc.	Petroleum and Coal Products
Custom Fiberglass Manufacturing	Transportation Equipment
Praxair Inc.	Chemicals and Allied Products
Shell Oil Products Us - Formerly Equilon Enterprise LLC	Petroleum and Coal Products
Valero Wilmington Asphalt Plant	Petroleum and Coal Products
BP West Coast Products - Formerly Arco Products	Petroleum and Coal Products
Equilon Enterprises, LLC	Chemicals and Allied Products
Conoco Phillips - Formerly Tosco Refining Company	Petroleum and Coal Products

Source: ARB Community Health Air Pollution Information System (CHAPIS)

SCAQMD published the third Basin-wide Multiple Air Toxics Exposure Study (MATES III) in September 2008. The MATES III study characterized the ambient TAC concentrations and potential exposures in the Basin. Two years of ambient monitoring for TACs was conducted as part of the study. The study included updated TAC emissions inventory and conducted air dispersion modeling to estimate ambient levels and the potential health risks of TACs. MATES III focused on the carcinogenic risks from TACs and did not estimate other health effects from

particulate matter exposures. The study estimated the 70-year lifetime carcinogenic risk in the Basin to be approximately 1,200 in 1 million based on average measurements at 10 fixed monitoring sites. Approximately 84 percent of the total risk was attributed to diesel particulate matter. Using the MATES III methodology, about 94 percent of the risk was attributed to emissions associated with mobile sources, and about 6 percent of the risk was attributed to TACs emitted from stationary sources, which include industries, and businesses such as dry cleaners and chrome plating operations (SCAQMD 2008).

SCAQMD estimates that the carcinogenic risk in the Community Plan area is from 1,201 to 2,904 in 1 million. This includes risk from the diesel engine-powered ocean-going ships, harbor craft, cargo handling equipment, trucks, and locomotives at POLB as well as other TAC sources in the area as described above.

3.8 ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast-food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite

difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

There are no existing concentrated sources of objectionable odors such as agriculture (farming and livestock), wastewater treatment plants, composting operations, landfills, rendering plants, dairies, and rail yards within 1 mile of the project area. However, the TAC sources identified above, including the POLB, refineries, and other industrial sources represent sources of objectionable odors as well.

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CHAPTER 4.0
APPLICABLE STANDARDS

Air quality in the project area is regulated by EPA, ARB, and SCAQMD. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

4.1 CRITERIA AIR POLLUTANTS

Air quality regulations focus on ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. These air pollutants are commonly referred to as "criteria air pollutants" since they are the most prevalent air pollutants known to be deleterious to human health, and there is extensive documentation available on their health effects.

4.1.1 Federal Plans, Policies, Regulations, and Laws

At the federal level, EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments to the CAA were made by Congress in 1990.

The CAA required EPA to establish National Ambient Air Quality Standards (NAAQS). As shown in Table 2, EPA has established primary and secondary NAAQS for ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The primary standards protect the public health, while the secondary standards protect the public welfare. The CAA also required each state to prepare an air quality control plan, referred to as a state implementation plan (SIP). The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and to determine whether implementing the SIPs will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not

Table 2
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS[1]		CAAQS[2]
		Primary[3]	Secondary[4]	Concentration[5]
Ozone (O_3)[6]	1-Hour	-	Same as Primary Standard	0.09 ppm (180 μg/m^3)
	8-Hour	0.075 ppm (147 μg/m^3)		0.070 ppm (137 μg/m^3) [7]
Carbon Monoxide (CO)	8-Hour	9 ppm (10 mg/m^3)	None	9.0 ppm (10 mg/m^3)
	1-Hour	35 ppm (40 mg/m^3)		20 ppm (23 mg/m^3)
	8-Hour (Lake Tahoe)	-	-	6 ppm (7 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 μg/m^3)	Same as Primary Standard	0.030 ppm (57 μg/m^3)[8]
	1-Hour	0.100 ppm	0.053 ppm (100 μg/m^3)	0.18 ppm (339 μg/m^3)[8]
Sulfur Dioxide (SO_2)	Annual Average	0.030 ppm (80 μg/m^3)	-	-
	24-Hour	0.14 ppm (365 μg/m^3)	-	0.04 ppm (105 μg/m^3)
	3-Hour	-	0.5 ppm (1,300 μg/m^3)	-
	1-Hour	-	-	0.25 ppm (655 μg/m^3)
Respirable Particulate Matter (PM_{10})[9]	24-Hour	150 μg/m^3	Same as Primary Standard	50 μg/m^3
	Annual Arithmetic Mean	Revoked		20 μg/m^3 [note 9]
Fine Particulate Matter ($PM_{2.5}$)[10]	24-Hour	35 μg/m^3	Same as Primary Standard	-
	Annual Arithmetic Mean	15 μg/m^3		12 μg/m^3
Lead (Pb)	30-Day Average	-	-	1.5 μg/m^3
	Calendar Quarter	1.5 μg/m^3	Same as Primary Standard	-
	Rolling 3-Month Average[10]	0.15 μg/m^3	Same as Primary Standard	-
Hydrogen Sulfide (H_2S)	1-Hour	No Federal Standards		0.03 ppm (42 μg/m^3)
Sulfates (SO_4)	24-Hour			25 μg/m^3
Visibility Reducing Particles	8-Hour (10 a.m. to 6 p.m., Pacific Standard Time)			Extinction coefficient of 0.23 per km-visibility of 10 miles or more (0.07/30 miles for Lake Tahoe) due to particles when the relative humidity is less than 70 percent.
Vinyl Chloride[7]	24-Hour			0.01 ppm (26 μg/m^3)

1 NAAQS (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact EPA for further clarification and current federal policies.

2 California Ambient Air Quality Standards for O_3, CO (except Lake Tahoe), SO_2 (1- and 24-hour), NO_2, PM_{10}, $PM_{2.5}$ and visibility reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

3 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

4 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

5 Concentration expressed first in units in which it was promulgated. Ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas.

6 On June 15, 2005, the 1-hour ozone standard was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact Areas (those areas do not yet have an effective date for their 8-hour designations). Additional information on federal ozone standards is available at http://www.epa.gov/oar/oaqps/greenbk/index.html.

7 ARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

8 The nitrogen dioxide ambient air quality standard was amended to lower the 1-hr standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes became effective March 20, 2008.

9 Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, EPA revoked the annual PM_{10} standard on December 17, 2006.

10 Effective December 17, 2006, EPA lowered the $PM_{2.5}$ 24-hour standard from 65 μg/m^3 to 35 μg/m^3.

ppm = parts per million; μg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter; km = kilometers

Source: ARB 2010b

submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary sources of air pollution in the air basin.

4.1.2 State Plans, Policies, Regulations, and Laws

ARB is responsible for coordination and oversight of state and local air pollution control programs in California and for implementation of the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required ARB to establish California Ambient Air Quality Standards (CAAQS) (Table 2). ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases, the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained through interpretation of the health-effects studies considered during the standard-setting process. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires all local air districts in the state to endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts shall focus particular attention on reducing the emissions from transportation and areawide emission sources, and provides districts with the authority to regulate indirect sources.

Among ARB's other responsibilities are overseeing compliance by local air districts with California and federal laws; approving local air quality plans; submitting SIPs to EPA; monitoring air quality; determining and updating area designations and maps; and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

4.1.3 Local Plans, Policies, Regulations, and Laws

South Coast Air Quality Management District

SCAQMD attains and maintains air quality conditions in the Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of SCAQMD includes preparation of plans for attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. SCAQMD also inspects stationary sources of air pollution and responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements

programs and regulations required by the CAA, CAAA, and CCAA. Air quality plans applicable to the proposed Community Plan are discussed below.

Air Quality Management Plan

SCAQMD and the Southern California Association of Governments are responsible for preparing the air quality management plan (AQMP), which addresses federal and state CAA requirements. The AQMP details goals, policies, and programs for improving air quality in the Basin. Two versions (2003 and 2007) of the AQMP are in different stages of approval. The 2003 AQMP is an update to the 1997 AQMP. The 2003 AQMP employs up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. The 2003 AQMP proposes policies and measures to achieve federal and state standards for healthy air quality in the Basin. The 2003 AQMP updates the demonstration of attainment for the federal ozone and PM_{10} standards; replaces the 1997 attainment demonstration for the federal CO standard and provides a basis for a maintenance plan for CO for the future; and updates the maintenance plan for the federal NO_2 standard that the Basin has met since 1992. The 2003 AQMP was adopted by SCAQMD in August 2003 and approved, with modifications, by ARB in October 2003 (SCAQMD 2006). ARB submitted the South Coast SIP to EPA on January 9, 2004; however, this SIP has not been approved, and the 1997 AQMP with 1999 amendments remains the federally approved AQMP.

A draft version of the 2007 AQMP was released to the public, and public workshops were held in October, November, and December 2006 (SCAQMD 2007a). The 2007 AQMP was adopted by the SCAQMD Governing Board on June 1, 2007. The purpose of the 2007 AQMP for the Basin is to set forth a comprehensive program that will lead the region into compliance with federal 8-hour ozone and $PM_{2.5}$ air quality standards. ARB adopted the State Strategy for the 2007 SIP, and the 2007 AQMP as part of the SIP on September 27, 2007. On November 28, 2007, ARB submitted a SIP revision to EPA for ozone, $PM_{2.5}$, CO, and NO_2 in the Basin; this revision is identified as the 2007 South Coast SIP. The 2007 AQMP/2007 South Coast SIP demonstrates attainment of the federal $PM_{2.5}$ standard in the Basin by 2014, and attainment of the federal 8-hour ozone standard by 2023. The SIP also includes a request of reclassification of the ozone attainment designation from “severe” to “extreme” (ARB 2007). On February 1, 2008, ARB submitted additional technical information relative to the 2007 South Coast SIP to EPA (ARB 2008).

The $PM_{2.5}$ strategy outlined in the AQMP is of interest. Since $PM_{2.5}$ in the Basin is overwhelmingly formed secondarily, the overall draft control strategy focuses on reducing precursor emission of sulfur oxides (SO_X), directly emitted $PM_{2.5}$, NO_X, and VOC instead of fugitive dust (SCAQMD 2007a). Based on SCAQMD's modeling sensitivity analysis, SO_X reductions, followed by directly emitted $PM_{2.5}$ and NO_X reductions, provide the greatest benefits in terms of reducing the ambient $PM_{2.5}$ concentrations.

As a result of state and local control strategies, the Basin has not exceeded the federal CO standard since 2002. In March 2005, SCAQMD adopted a CO Redesignation Request and Maintenance Plan that provides for maintenance of the federal CO air quality standard until at least 2015 and commits to revising the Redesignation Request and Maintenance Plan in 2013 to ensure maintenance through 2025 (SCAQMD 2005). SCAQMD also adopted a CO emissions budget that covers 2005 through 2015. On February 24, 2006, ARB transmitted the Redesignation Request and Maintenance Plan (including the CO budgets) to EPA for approval. On June 11, 2007, EPA redesignated the Basin as attainment for the federal CO standard and approved the maintenance plan amendment to the SIP for the Basin (Federal Register 2007).

SCAQMD Rules and Regulations

All projects are subject to SCAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction activities associated with implementation of the proposed Community Plan may include, but are not limited to:

> ***Rule 401 – Visible Emissions.*** A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.
>
> ***Rule 402 – Nuisance.*** A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property. The provisions of this rule do not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

Rule 403 – Fugitive Dust. This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions. Rule 403 applies to any activity or man-made condition capable of generating fugitive dust.

Rule 1113 – Architectural Coatings. No person shall apply or solicit the application of any architectural coating within the SCAQMD, with VOC content in excess of the values specified in a table incorporated in the Rule.

4.2 TOXIC AIR CONTAMINANTS

Air quality regulations also focus on TACs, or in federal parlance hazardous air pollutants (HAPs). Examples of TACs are discussed in detail in Section 3.7. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no safe level of exposure. This contrasts with the criteria air pollutants, for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 2). Instead, EPA and ARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology for toxics (MACT and BACT) to limit emissions. These statutes and regulations, in conjunction with additional rules set forth by the districts, establish the regulatory framework for TACs.

4.2.1 Federal Hazardous Air Pollutant Programs

EPA has programs for identifying and regulating HAPs. Title III of the CAAA directed EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP may differ for major sources than for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (TPY) of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring MACT. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), EPA is required to promulgate health risk–based emissions standards, where deemed necessary, to address risks remaining after implementation of the technology-based NESHAP standards.

The CAAA also required EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

4.2.2 State and Local Toxic Air Contaminant Programs

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807 [Chapter 1047, Statutes of 1983]) and the Air Toxics Hot Spots Information and Assessment Act (Hot Spots Act) (AB 2588 [Chapter 1252, Statutes of 1987]). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, diesel PM was added to the ARB list of TACs.

Once a TAC is identified, ARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions.

The Air Toxics Hot Spots Information and Assessment Act requires existing facilities emitting toxic substances above a specified level to prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

ARB has adopted diesel-exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In February 2000, ARB adopted a new public-transit bus fleet rule and emissions standards for new urban buses. These new rules and standards provide (1) more stringent emission standards for some new urban bus engines beginning with 2002 model year engines, (2) zero-emission bus demonstration and purchase requirements applicable to transit agencies, and (3) reporting requirements under which transit agencies must demonstrate compliance with the public-transit bus fleet rule. New milestones include the low-sulfur diesel fuel requirement, and tighter emission standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide. Over time, the replacement of older vehicles will result in a

vehicle fleet that produces substantially lower levels of TACs than current vehicles. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade, and they will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's risk reduction plan, it is expected that diesel PM concentrations will be reduced by 75 percent in 2010 and 85 percent in 2020 from the estimated year 2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

ARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook), which provides guidance concerning land use compatibility with TAC sources (ARB 2005). Although it is not a law or adopted policy, the Handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help keep children and other sensitive populations out of harm's way. A number of comments on the Handbook were provided to ARB by air districts, other agencies, real estate representatives, and others. The comments included concern about whether ARB was playing a role in local land use planning, the validity of relying on static air quality conditions over the next several decades in light of technological improvements, and support for providing information that can be used in local decision making.

At the local level, air pollution control or management districts may adopt and enforce ARB control measures. Under SCAQMD Regulation XIV (Toxics and Other Non-Criteria Pollutants), and in particular Rule 1401 (New Source Review), all sources that possess the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. SCAQMD limits emissions and public exposure to TACs through a number of programs. SCAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

4.3 ODORS

SCAQMD has identified some common types of facilities that have been known to produce odors: agriculture (farming and livestock), wastewater treatment plants, food processing plants,

chemical plants, composting operations, refineries, landfills, rendering plants, dairies, rail yards, and fiberglass molding operations. This list is not meant to be entirely inclusive, but to act as general guidance. Because offensive odors rarely cause any physical harm and no requirements for their control are included in federal or state air quality regulations, SCAQMD does not have rules or standards related to odor emissions other than Rule 402 (Nuisance) and Rule 410 (Odors from Transfer Stations and Material Recovery Facilities). Any actions related to odors are based on citizen complaints to local governments and SCAQMD.

Two situations increase the potential for odor problems. The first occurs when a new odor source is located near existing sensitive receptors. The second occurs when new sensitive receptors are developed near existing sources of odor. In the first situation, SCAQMD recommends operational changes, add-on controls, process changes, equipment relocation, or changes in stack heights where feasible to address odor complaints. In the second situation, the potential conflict is considered significant if the project site is at least as close as any other site that has already experienced significant odor problems related to the odor source. For projects locating near a source of odors, and for odor sources locating near existing sensitive receptors, SCAQMD recommends that the determination of potential conflict be based on variables such as wind speed, wind direction, and the distance and frequency at which odor complaints from the public have occurred in the vicinity of the facility (SCAQMD 1993).

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CHAPTER 5.0
EXISTING CONDITIONS

5.1 ENVIRONMENTAL SETTING

The project area is located in Los Angeles County, which lies within the Basin, a 6,600-square-mile coastal plain bounded by the Pacific Ocean to the southwest and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

Topography, Meteorology, and Climate

The distinctive climate of the Basin is determined by its terrain and geographic location. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the southwest and high mountains around the rest of its perimeter. The general region lies in the semipermanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds.

Winds in the project area are usually driven by the dominant land/sea breeze circulation system. Regional wind patterns are dominated by the daytime onshore sea breezes. At night, the wind generally slows and reverses direction traveling toward the sea. Local canyons can also alter wind direction, with wind tending to flow parallel to the canyons.

The vertical dispersion of air pollutants in the Basin is hampered by the presence of persistent temperature inversions. High-pressure systems, such as the semipermanent high-pressure zone in which the Basin is located, are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler, marine-influenced air near the ground surface, and resulting in the formation of subsidence inversions. Such inversions restrict the vertical

dispersion of air pollutants released into the marine layer and, together with strong sunlight, can produce worst-case conditions for the formation of photochemical smog. The Basinwide occurrence of inversions at 3,500 feet above mean sea level or less averages 191 days per year (SCAQMD 1993).

The atmospheric pollution potential of an area is largely dependent on winds, atmospheric stability, solar radiation, and terrain. The combination of low wind speeds and low inversions produces the greatest concentration of air pollutants. On days without inversions, or on days of winds averaging over 15 miles per hour (mph), smog potential is greatly reduced.

5.2 MONITORING STATION DATA AND ATTAINMENT DESIGNATIONS

Criteria air pollutant concentrations are measured at 36 monitoring stations in the Basin. The project area is located in Source Receptor Area (SRA) 4 – South Los Angeles County Coastal. The most representative monitoring stations in the project area are the North and South Long Beach monitoring stations. The South Long Beach station, located approximately 0.8 mile north of the Community Plan area, reports data for PM_{10} and $PM_{2.5}$. The North Long Beach monitoring station, located approximately 3 miles north of the Community Plan area, reports data for ozone, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. Table 3 summarizes the air quality data for the most recent 3 years.

Both ARB and EPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment.

The Basin is currently classified as a federal nonattainment area for ozone (severe-17), PM_{10} (serious), and the 2006 $PM_{2.5}$ standard, and a federal attainment/maintenance area for CO (EPA 2009b). The Basin is classified as a state nonattainment area for ozone, PM_{10}, and $PM_{2.5,}$ and an attainment area for CO. The Basin currently meets the federal and state standards for NO_2, SO_2, and lead and is classified as an attainment area for these pollutants (ARB 2009b).

Table 3
Long Beach Monitoring Stations – Ambient Air Quality

Pollutant	Averaging Time	Federal Primary Standards	California Air Quality Standards	Maximum Concentrations[1]			Number of Days Exceeding Federal Standard[2]			Number of Days Exceeding State Standard[2]		
				2006	2007	2008	2006	2007	2008	2006	2007	2008
Ozone (NLB)	1 hour	0.12 ppm[3]	0.09 ppm	0.081	0.099	0.093	0	0	0	0	1	0
	8 hour	0.075 ppm	0.070 ppm	0.058	0.073	0.074	0	0	0	0	1	1
Carbon Monoxide (NLB)	1 hour	35 ppm	20 ppm	4	3	3	0	0	0	0	0	0
	8 hour	9 ppm	9.0 ppm	3.36	2.59	2.49	0	0	0	0	0	0
Sulfur Dioxide (NLB)	24 hours	0.14 ppm	0.04 ppm	0.010	0.010	0.012	0	0	0	0	0	0
	Annual	0.030 ppm	none	0.001	0.001	0.002	0	0	0	–	–	–
Nitrogen Dioxide (NLB)	1 hour	0.100 ppm	0.18 ppm	0.102	0.107	0.125	0	0	0	–	–	–
	Annual	0.053 ppm	0.030 ppm	0.022	0.020	0.021	0	0	0	0	0	0
PM_{10}[4][5] (SLB)	24 hours	150 µg/m^3	50 µg/m^3	117.0	123.0	81.0	0	0	0	19	11	9
	Annual	Revoked	20 µg/m^3	45.0	29.1	35.9	–	–	–	1	1	1
$PM_{2.5}$[5] (SLB)	24 hours	35 µg/m^3	none	53.6	67.9	60.9	6	6	7	–	–	–
	Annual	15 µg/m^3	12 µg/m^3	14.4	*	13.6	0	*	0	1	*	1

"–" = data not available or applicable.
"*" = there were insufficient data to determine the value.
(1) Concentration units for ozone, carbon monoxide, and nitrogen dioxide are in parts per million (ppm). Concentration units for PM_{10} and $PM_{2.5}$ are in micrograms per cubic meter (µg/m^3).
(2) For annual standards, a value of 1 indicates that the standard has been exceeded.
(3) The federal 1-hour ozone standard was revoked in June 2005.
(4) PM_{10} data are recorded separately for federal and state purposes because the EPA and California methods are slightly different. Federal values are shown. PM_{10} is measured every 6 days; the number of days exceeding standards is projected to a 365-day base from the measurements.
(5) Very high values of PM_{10} and $PM_{2.5}$ in 2007 were due to wildfires that occurred in October 2007.
Source: ARB 2009c; SCAQMD 2009a

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CHAPTER 6.0
FUTURE AIR QUALITY IMPACTS

6.1 ANALYSIS METHODOLOGY

Short-term construction-generated emissions of criteria air pollutants and ozone precursors were assessed in accordance with methods recommended by SCAQMD. Where quantification is required, emissions were modeled using the URBEMIS 2007 Version 9.2.4 computer program (Rimpo and Associates 2008), as recommended by SCAQMD. URBEMIS was used to determine whether short-term construction-related emissions of criteria air pollutants associated with implementation of the Community Plan would exceed applicable thresholds and where mitigation would be required. Modeling was based on project-specific data, when available. However, when project-specific information (e.g., amount of land to be disturbed/graded per day, types of equipment to be used, number of construction employees) was not available, reasonable assumptions and default settings were used to estimate criteria air pollutant and ozone precursor emissions. A detailed list of modeling assumptions is provided in Appendix A. Predicted short-term construction-generated emissions were compared with applicable SCAQMD thresholds for determination of significance.

Long-term (i.e., operational) regional emissions of criteria air pollutants and precursors, including mobile- and area-source emissions, were also quantified using the URBEMIS computer model (Rimpo and Associates 2008). It was assumed that full buildout of the Community Plan would occur in 2035. Area-source emissions were modeled according to the size and type of land uses proposed under the Community Plan. Mass mobile-source emissions were modeled based on the net increase in daily vehicle trips that would result from full buildout of the Community Plan. Project trip generation rates were available from the traffic impact analysis prepared for the Community Plan (Iteris 2010). Predicted long-term operational emissions were compared with applicable SCAQMD thresholds for determination of significance.

At this time, SCAQMD has not adopted a methodology for analyzing short-term construction-related emissions of TACs and/or the exposure thereof. Therefore, construction-related emissions of TACs were assessed in a qualitative manner. SCAQMD recommends that lead agencies for projects generating or attracting vehicular trips, especially heavy-duty diesel-fueled vehicles, perform a mobile source health risk assessment (HRA). However, the types of tenants that would occupy commercial space in the Community Plan area and the number of trucks that

would visit these facilities on any given day are not known at this time. Therefore, operational TAC emissions were assessed qualitatively in accordance with ARB guidance as described below.

The ARB Handbook provides guidance concerning land use compatibility with sources of TAC emissions (ARB 2005). The Handbook offers recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities. The Handbook is advisory and not regulatory, but it offers the recommendations identified below that are pertinent to the Community Plan.

- Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones.
- Avoid siting new commercial trucking facilities that accommodate more than 100 trucks per day, or 40 trucks equipped with transportation refrigeration units (TRUs), within 1,000 feet of sensitive receptors (e.g., residences, schools, or parks).
- Avoid siting new sensitive land uses immediately downwind of petroleum refineries.
- Avoid siting new sensitive land uses within 300 feet of any dry-cleaning operation using perchloroethylene (perc). For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult the local air district. Do not site new sensitive land uses in the same building with dry-cleaning operations that use perc.
- Obtain facility-specific information where there are questions about siting a sensitive land use close to an industrial facility, including the amount of pollutant emitted and its toxicity, distance to nearby receptors, and types of emissions controls in place.
- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads carrying 100,000 vehicles per day, or rural roads carrying 50,000 vehicles per day.

The land use compatibility with TAC-generating traffic volumes on area roadways is assessed according to guidance provided by ARB's Handbook. It is important to note that ARB's Handbook is considered screening level guidance and does not contain recommended thresholds of significance.

All other air quality impacts (i.e., local mobile-source emissions, exposure of sensitive receptors to TAC, and odorous emissions) were assessed in accordance with methodologies recommended by SCAQMD.

6.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State California Environmental Quality Act (CEQA) Guidelines and guidance from SCAQMD. Implementation of the Community Plan was determined to result in a significant impact related to air quality if it would do any of the following:

- conflict with or obstruct implementation of the applicable air quality plan,
- violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable NAAQS or CAAQS (including releasing emissions that exceed quantitative thresholds for ozone precursors),
- expose sensitive receptors to substantial pollutant concentrations, or
- create objectionable odors affecting a substantial number of people.

As stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. SCAQMD has established thresholds, as shown in Table 4.

6.3 IMPACT ANALYSIS

6.3.1 Regional Impacts

Construction Emissions

Construction emissions are considered short term and temporary in duration but have the potential to represent a significant impact with respect to air quality. PM_{10} and $PM_{2.5}$ are among the pollutants of greatest localized concern with respect to construction activities. Particulate emissions from construction activities can lead to adverse health effects and nuisance concerns, such as reduced visibility and soiling of exposed surfaces. Particulate emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on

Table 4
SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction [b]**	Operation [c]
NO_X	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs) and Odor Thresholds		
TACs (including carcinogens and noncarcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants [d]		
NO_2 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state)	
PM_{10} 24-hour average annual average	10.4 μg/m^3 (construction)[e] & 2.5 μg/m^3 (operation) 1.0 μg/m^3	
$PM_{2.5}$ 24-hour average	10.4 μg/m^3 (construction)[e] & 2.5 μg/m^3 (operation)	
Sulfate 24-hour average	1 μg/m^3	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) 9.0 ppm (state/federal)	

[a] Source: SCAQMD 2009b
[b] Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea Air Basin and Mojave Desert Air Basin).
[c] For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.
[d] Ambient air quality thresholds for criteria pollutants are based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
[e] Ambient air quality threshold is based on SCAQMD Rule 403.

KEY: lbs/day = pounds per day
ppm = parts per million
μg/m^3 = micrograms per cubic meter
≥ greater than or equal to

paved and unpaved surfaces, and vehicle and equipment exhaust. Construction emissions of particulate matter can vary greatly depending on the level of activity, the specific operations taking place, the number and types of equipment operated, local soil conditions, weather conditions, and the amount of earth disturbance (e.g., site grading, excavation, cut-and-fill).

Emissions of ozone precursors, ROG and NO_X, are primarily generated from mobile sources and vary as a function of vehicle trips per day associated with delivery of construction materials, the importing and exporting of soil, vendor trips, and worker commute trips; and the types and number of heavy-duty, off-road equipment used and the intensity and frequency of their operation. A large portion of construction-related ROG emissions also result from the application of asphalt and architectural coatings and vary depending on the amount of coatings and paving applied each day.

Development of the project area would occur over a very large area (approximately 667 acres), and large portions of the project area would undergo construction at one time. However, a detailed schedule describing the timing and location of construction activities associated with implementation of the Community Plan is not available at the time of this writing. The additional development assumed in the Community Plan would occur over a 25-year period, with 2035 being the buildout year. Given that exhaust emission rates of the construction equipment fleet in California are expected to decrease over time due to state and SCAQMD-led efforts, maximum daily construction emissions were estimated using the earliest calendar when construction is expected to begin (i.e., 2011) in order to generate conservative estimates. It is anticipated, however, that in later years, advancements in engine technology, retrofits, and turnover in the equipment fleet would result in lower levels of emissions. Accordingly, maximum daily construction emissions for development envisioned under the Community Plan were estimated using the URBEMIS computer program (Rimpo and Associates 2008). URBEMIS is designed to model construction emissions for land use development projects based on building size, land use and type, and disturbed acreage; and allows for the input of project-specific information. Project-generated emissions of criteria air pollutants (e.g., PM_{10}) and precursors (i.e., ROG and NO_X) were modeled based on general information provided in the project description and default SCAQMD-recommended settings and parameters attributable to the proposed land use types and site location. URBEMIS also divides construction activity into distinct construction phases: site grading, asphalt paving, building construction, and the application of architectural coatings.

Without detailed information about the phasing of construction, it was assumed that 10 percent of the development envisioned under the Community Plan could occur in a single year. All construction activity phases were assumed to occur simultaneously over the course of a year.

Because of the size of the Community Plan and the extended period until full buildout, it is likely that all four construction phases could occur simultaneously at various locations in the Community Plan area. In other words, site grading, asphalt paving, building construction, and the application of architectural coatings could take place at different locations in the Community Plan area at the same time. Construction emissions associated with development envisioned under the Community Plan would differ according to the total number of residential units, office, retail, and restaurant square footage, and hotel rooms to be developed.

Table 5 summarizes the modeled worst-case daily emissions of criteria air pollutants and ozone precursors associated with construction activities. Refer to Appendix A for a detailed summary of the URBEMIS modeling assumptions, inputs, and outputs.

Table 5
Estimated Construction-Related Daily Emissions of Criteria Air Pollutants and Precursors (Unmitigated)

Phase (Year)	**Emissions Pounds Per Day (lbs/day)**				
	ROG	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Worst-Case Total Daily Emissions (Unmitigated)	191.3	146.6	118.1	287.0	65.2
SCAQMD Significance Threshold; see Table 4	***75***	***100***	***550***	***150***	***55***
Exceeds Threshold?	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Refer to Appendix A for detailed assumptions and modeling output files.
Source: Data modeled by AECOM 2010.

As shown above in Table 5, the maximum daily level of construction-generated emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ would exceed the applicable SCAQMD-recommended thresholds. It should be noted that the maximum daily emissions level estimates displayed in Table 5 assume that the intensity of construction activity would be the same during all years of construction on the site. It is more likely, however, that some period of construction (and associated emissions) would be more intense than other periods due to changes in market conditions and according to preferences of the City and the project applicants. If, for instance, peak construction activity would be as much as three times as intense as the assumed level of construction activity during the 25-year buildout period, then the maximum daily emissions would be three times the levels presented in Table 5.

Because mass emissions of criteria air pollutants and ozone precursors would exceed SCAQMD's recommended threshold of significance, construction-generated emissions of criteria air pollutants and precursors could violate or contribute substantially to an existing or projected air quality violation. Also, construction emissions of criteria air pollutants and precursors could expose sensitive receptors to substantial pollutant concentrations, particularly when grading and other ground disturbance activities occur near land uses that have already been developed (and where people are already living or working) on the project area. This would be a **potentially significant** impact.

Operations Emissions

Implementation of the Community Plan would result in long-term regional emissions of criteria air pollutants and ozone precursors associated with area sources, such as natural gas consumption, landscaping, applications of architectural coatings, and consumer products, in addition to operational vehicle-exhaust emissions. According to the traffic impact analysis, full buildout of the Community Plan would result in approximately 91,439 additional vehicle trips per day (Iteris 2010). The trip rate includes reductions to account for pass-by and nonauto trips based on various sources, including information in the *ITE Trip Generation* publications, *Year 2000 US Census Journey to Work* and empirical studies of transit mode split in Downtown Long Beach (Iteris 2010).

Operations emissions were modeled using URBEMIS (Rimpo and Associates 2008), as recommended by SCAQMD. Model defaults were adjusted to reflect project-specific data where available including the sizes and types of proposed land uses. Modeled operations emissions for implementation of the Community Plan are presented in Table 6. Refer to Appendix A for a detailed summary of the URBEMIS modeling assumptions, inputs, and outputs.

Based on the modeling conducted, and as summarized in Table 6, implementation of the Community Plan would result in a net increase in unmitigated long-term regional emissions of criteria air pollutants and ozone precursors that exceed SCAQMD's applicable thresholds. Operational area- and mobile-source emissions of criteria air pollutants and ozone precursors from implementation of the Community Plan would exceed SCAQMD's applicable thresholds, and would result in or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS. High residential densities are currently allowed by the existing General Plan land use districts, which permit residential densities from 30 dwelling units per acre (dua) to 108 dua, and two of the project area districts allow up to 249 dua. The proposed Community Plan would not increase the allowable density in the Downtown area. Therefore, operational

Table 6
Estimated Project-Generated Operations Emissions

Source	Emissions Pounds Per Day (lbs/day)				
	ROG	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
2035					
Area Sources	285.9	97.7	46.3	2.4	2.4
Mobile Sources	274.2	277.5	2800.8	1538.1	297.3
Total Emissions	**560.1**	**375.2**	**2847.0**	**1540.5**	**299.6**
SCAQMD Significance Threshold; see Table 4	***55***	***55***	***550***	***150***	***55***
Exceeds Threshold?	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*

Bold indicates an exceedance of SCAQMD CEQA significance thresholds.
Totals may not add due to rounding.
Maximum daily emissions of VOC, NO_X, PM_{10}, and $PM_{2.5}$ occur in winter; maximum daily emissions of CO occur in summer.
Refer to Appendix A for detailed assumptions and modeling output files.
Source: Data modeled by AECOM 2010.

emissions associated with land use development on the site would have been accounted for in applicable air quality plans. Implementation of the Community Plan would not conflict with air quality planning efforts in the Basin. However, operational area- and mobile-source emissions from implementation of the proposed Community Plan would result in or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS. As a result, this impact is considered **potentially significant**.

6.3.2 Toxic Air Contaminant Emissions

Construction-Related Emissions

Implementation of the Community Plan would result in short-term emissions of diesel exhaust from heavy-duty construction equipment. Emissions of particulate exhaust from diesel-fueled engines (diesel PM) were identified as a TAC by ARB in 1998. Construction activities would result in the generation of diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, building construction, paving, and other construction activities. According to ARB, the potential cancer risk from the inhalation of diesel PM, which is discussed below, outweighs the potential noncancer health impacts (ARB 2003).

It is important to note that emissions from construction equipment would be reduced over the period of buildout of the Community Plan. In January 2001, EPA promulgated a final rule to reduce emissions standards for heavy-duty diesel engines in 2007 and subsequent model years. These emissions standards represent a 90 percent reduction in NO_X emissions, 72 percent reduction of nonmethane hydrocarbon emissions, and 90 percent reduction of particulate matter emissions in comparison to the emissions standards for the 2004 model year. In December 2004, ARB adopted a fourth phase of emission standards (Tier 4) in the Clean Air Non-road Diesel Rule that are nearly identical to those finalized by EPA on May 11, 2004. As such, engine manufacturers are now required to meet after-treatment-based exhaust standards for NO_X and PM starting in 2011 that are more than 90 percent lower than current levels, putting emissions from off-road engines virtually on par with those from on-road heavy-duty diesel engines.

More specifically, the dose to which receptors are exposed (a function of concentration and duration of the exposure period) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). According to the Office of Environmental Health Hazard Assessment, HRAs, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (Salinas, pers. comm., 2004). Thus, because the use of off-road heavy-duty diesel equipment would be temporary, combined with the highly dispersive properties of diesel PM (Zhu et al. 2002) and further reductions in exhaust emissions due to EPA and ARB regulations, and construction-related activities would be typical to similar development-type projects, construction-related TAC emissions would not expose sensitive receptors to substantial emissions of TACs. As a result, this impact would be **less than significant.**

On-Site Operations-Related Emissions

Stationary-Source Emissions

Long-term operation of commercial uses developed under the Community Plan would likely include the installation of stationary sources of TACs, such as dry-cleaning establishments, diesel-fueled backup generators, and/or restaurants using charbroilers. These and other types of stationary sources may also be developed at locations near the project area in future years. All stationary sources that may emit TACs would be subject to SCAQMD permitting regulations and T-BACT requirements. Pursuant to SCAQMD Regulation XIV (Toxics and Other Non-Criteria Pollutants), and in particular Rule 1401 (New Source Review), SCAQMD would analyze such sources (e.g., in an HRA) based on their potential to emit TACs. If it is determined that the

sources would emit TACs in excess of SCAQMD's applicable threshold of significance, T-BACT would be implemented to reduce emissions. If the implementation of T-BACT would not reduce the risk below the applicable threshold, then SCAQMD would deny the required permit. As a result, operation of any stationary sources would not result in the exposure of sensitive receptors to TACs at levels exceeding SCAQMD's significance threshold. Therefore, this impact is considered **less than significant.**

Mobile-Source Emissions

Within the plan area, on-site operational mobile sources of TAC emissions would be associated with the operation of diesel-powered delivery trucks at the loading docks and delivery areas of commercial land uses. Some sensitive land uses within the project area could be located within 100 feet of commercial uses. Operational activities that require the use of diesel-fueled vehicles, such as delivery areas, or loading docks, could expose nearby sensitive receptors to diesel PM emissions. The diesel PM emissions generated by these uses would be produced primarily at discrete locations on a regular basis. Idling trucks at these locations, including TRUs, could result in the exposure of nearby residents to increased diesel PM levels on a recurring basis.

As referenced above, the ARB's Handbook recommends avoiding the siting of new commercial trucking facilities that accommodate more than 100 trucks per day, or 40 trucks equipped with TRUs, within 1,000 feet of sensitive receptors (e.g., residences or schools) (ARB 2005). The types of tenants that would occupy commercial space in the Community Plan area and the number of trucks that would visit these facilities on any given day are not known at this time; however, it is anticipated that the types of commercial uses proposed for the Community Plan area would not involve large-scale trucking operations. For the purposes of the Community Plan, it is not anticipated that the combination of commercial land uses proposed in the area would exceed these screening limits.

ARB adopted an idling restriction ATCM for large commercial diesel-powered vehicles, which became effective February 1, 2005. In accordance with this measure, affected vehicles are required to limit idling to no longer than 5 minutes under most circumstances. ARB is also evaluating additional ATCMs intended to further reduce TACs associated with commercial operations, including a similar requirement to limit idling of smaller diesel-powered commercial vehicles.

Nonetheless, given that proposed commercial land uses have not yet been identified and could potentially involve substantial volumes of truck activity occurring in proximity to nearby

sensitive receptors, exposure of nearby receptors within the project area to mobile-source TACs associated with commercial and industrial activities is considered a **potentially significant** impact.

Off-Site Emissions from Mobile Sources

ARB's Handbook includes the recommendation to avoid the siting of new sensitive land uses (e.g., residences, schools) within 500 feet of freeways, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day. The projected 2035 average daily traffic volume on roadways in the Community Plan area is less than ARB's specified criteria. Therefore, the location of the proposed sensitive uses would be in concurrence with ARB recommendations.

Based on the findings in the ARB guidance document, it can be ascertained that implementation of the Community Plan would not have the potential to expose sensitive receptors to TACs from mobile sources to an extent that health risks could result. This impact is considered ***less than significant***.

Land Use Compatibility with POLB and Stationary Sources

Implementation of the Community Plan would place sensitive receptors within proximity to the POLB. ARB's Handbook does not provide specific siting recommendations for ports. The most recent HRA performed for the POLB (Middle Harbor Redevelopment Project) that is part of the project area is located within the 100 in 1 million cancer risk contour, which is mainly attributed to exhaust emission from marine vessels. The risk decreases with distance from the POLB, and the northeast end of the Community Plan area is located within the 20 in 1 million cancer risk contour (SAIC 2009). As described in Section 3.7, the cumulative carcinogenic risk in the Community Plan area ranges from 1,201 to 2,904 in 1 million. This includes risk from emissions sources at POLB as well as other TAC sources in the area.

As shown in Table 4, SCAQMD recommends a maximum incremental risk of 10 in 1 million as a threshold for exposure of sensitive receptors. The Community Plan would potentially place sensitive receptors in an area that exceeds this threshold. The POLB has adopted the San Pedro Bay Ports Clean Air Action Plan (CAAP) aimed at reducing the health risks posed by air pollution from port-related ships, trains, trucks, terminal equipment, and harbor craft. The CAAP was created with the cooperation and participation of SCAQMD, ARB, and EPA. The 5-year CAAP proposes to cut particulate matter pollution from all port-related sources by at least 47 percent by 2012. Under the CAAP, the POLB proposes to eliminate older diesel trucks from San

Pedro Bay cargo terminals within 5 years by helping to finance a new fleet of clean or retrofitted vehicles. The CAAP also calls for all major container cargo and cruise ship terminals at the ports to be equipped with shore-side electricity within 5 to 10 years so that vessels at berth can shut down their diesel-powered auxiliary engines. To reduce emissions of air pollutants, ships would also be required to reduce their speeds when entering or leaving the harbor region, use low-sulfur fuels, and employ other emission-reduction measures and technologies. Under the CAAP, diesel PM from all port-related sources would be reduced by a total of 1,200 tons per year (POLB 2006).

However, even with the emission reductions expected from the CAAP, the siting of residential uses within the project area would result in a **potentially significant** impact with regard to exposure of sensitive receptors to the TAC emission sources identified in ARB's siting recommendations.

In summary, implementation of the Community Plan would not expose sensitive receptors to excessive TAC concentrations associated with short-term construction-generated emissions; on-site, long-term operational-generated emissions; or off-site, mobile-source emissions. This impact would be ***less than significant***. The impact with respect to on-site, mobile-source emissions and emissions from surrounding TAC sources, including the POLB, is ***potentially significant***.

6.3.3 Local Impacts

Localized Significance Threshold Analysis

As part of SCAQMD's environmental justice program, attention has been focused on localized effects of air quality. The SCAQMD staff has developed localized significance threshold (LST) methodology that can be used to determine whether the project may generate significant adverse localized air quality impacts (both short-term and long-term). LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of a particular pollutant for each SRA (SCAQMD 2003a).

SCAQMD's guidance states that LSTs are applicable at the project-specific level and generally are not applicable to regional projects. Since the development parameters (construction schedule, size, footprint, onsite emissions) of specific projects under the Community Plan are not known at this time, an LST analysis was not performed.

Operation-Related Local Carbon Monoxide Emissions

CO concentration is a direct function of motor vehicle activity (e.g., idling time and traffic flow conditions), particularly during peak commute hours, and meteorological conditions. Under specific meteorological conditions (e.g., stable conditions that result in poor dispersion), CO concentrations may reach unhealthy levels with respect to local sensitive land uses such as residential areas, schools, and hospitals. As a result, SCAQMD recommends analysis of CO emissions at a local as well as a regional level.

An appropriate qualitative screening procedure is provided in the procedures and guidelines contained in *Transportation Project-Level Carbon Monoxide Protocol* (the Protocol) to determine whether a project poses the potential for a CO hotspot (UCD ITS 1997). A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. According to the Protocol, projects may worsen air quality if they increase the percentage of vehicles in cold start modes by 2 percent or more; significantly increase traffic volumes (by 5 percent or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F or causing an intersection that would operate at LOS D or better without the project, to operate at LOS E or F.

The Community Plan's traffic analysis (Iteris 2010) indicates that some of the signalized intersections that were analyzed would operate at LOS E or LOS F under 2035 cumulative conditions with the project. The Protocol prescribes a quantitative screening analysis to determine a project's CO impacts. However, the Protocol screening analysis has become obsolete because it uses emission factors from an older version of ARB's EMFAC model. As a substitute, various air quality agencies in California have developed conservative screening methods. SCAQMD has not developed quantitative CO screening criteria; therefore, the methods of the Sacramento Metropolitan Air Quality Management District (SMAQMD) are used (SMAQMD 2009). SMAQMD recently released new screening criteria in its *Guide to Air Quality Assessment in Sacramento County* that provide lead agencies with a conservative indication of whether project-generated vehicle trips would result in the generation of CO emissions that exceed or contribute to an exceedance of the ambient air quality standards for CO (SMAQMD 2009). The screening criteria have been developed to help lead agencies analyze potential CO impacts and identify when site-specific CO dispersion modeling is necessary. SMAQMD's recommended screening methodology states that the project would result in a less-than-significant impact to air quality for local CO if the following criteria are met:

- The project would not result in an affected intersection experiencing more than 31,600 vehicles per hour; and
- The mix of vehicle types at the intersection is not anticipated to be substantially different from the County average (as identified by the EMFAC or URBEMIS models).

The maximum cumulative traffic, including traffic generated by land uses proposed under the Community Plan, at an affected intersection is approximately 6,000 vehicles per hour. Therefore, none of the intersections would be anticipated to accommodate volumes of traffic that would exceed 31,600 vehicles per hour and all affected roadways would be at-grade. The screening criteria were derived based on modeling parameters in Sacramento County (vehicle mix, background CO concentrations, meteorological factors). However, traffic at affected intersections would be an order of magnitude lower than the screening criterion and is not expected to contribute to CO concentrations that are higher than the applicable ambient air quality standards despite the differences in modeling parameters. A review of vehicle mixes in Los Angeles County and Sacramento County, as contained in URBEMIS, shows that the fleet mixes are not substantially different and predominantly consist of light autos and light trucks. Furthermore, due to stricter vehicle emissions standards in newer cars, new technology, and increased fuel economy, future CO emission factors under future buildout conditions (year 2035) would be substantially lower than those under existing conditions. Thus, even though there would be more vehicle trips under the Community Plan at buildout than under existing conditions, project-generated local mobile-source CO emissions would not result in or substantially contribute to concentrations that exceed the 1-hour or 8-hour ambient air quality standards for CO. As a result, this impact would be **less than significant**.

6.3.4 Odors

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

The exposure of sensitive receptors to odorous emissions from construction and operation of development envisioned under the Community Plan is discussed under separate headings below.

Construction

Project construction activities associated with the development of on-site land uses could result in odorous emissions from diesel exhaust generated by construction equipment. During some periods of the 25-year buildout of the Community Plan intense levels of construction activity could potentially occur in proximity to existing or future-planned sensitive receptors or construction activity could potentially occur near sensitive receptors for an extended period of time. However, because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust (as discussed under Section 6.3.2), nearby receptors would not be affected by diesel exhaust odors associated with project construction. The impact would be **less than significant**.

On-Site Operations

No common sources of nuisance odors, such as wastewater treatment facilities, waste-disposal facilities, or agricultural operations, are proposed as part of the Community Plan. With regular maintenance and proper design, residential land uses are typically not considered a major source of odors. However, truck deliveries to commercial uses could intermittently and temporarily emit diesel odors. Additionally, commercial uses could provide development of convenience uses that may include sources of odorous emissions (e.g., fast-food restaurants) that would be perceived as offensive to some individuals. The operation of such sources could expose a substantial number of proposed on-site receptors to objectionable odorous emissions. Also, due to the project area's proximity to the POLB and other stationary sources, implementation of the Community Plan could expose sensitive receptors to odors from diesel exhaust emissions. As a result, this impact would be considered **potentially significant**.

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CHAPTER 7.0
MITIGATION MEASURES

7.1 CONSTRUCTION EMISSIONS

7.1.1 Dust Control

Standard Condition AIR-1. The project applicant(s) shall comply with the following measures to reduce emissions of fugitive dust, including PM_{10} and $PM_{2.5}$. These measures are compliant with SCAQMD Rule 403 for Best Available Control Measures. Because these measures are required by rule, they are not mitigation measures in the context of CEQA.

- Land disturbance shall be minimized to the extent feasible.
- Haul trucks shall be covered when loaded with fill.
- Paved streets shall be swept at least once per day where there is evidence of dirt that has been carried on to the roadway.
- Watering trucks shall be used to minimize dust. Watering should be sufficient to confine dust plumes to the project work areas.
- Active disturbed areas shall have water applied to them three times daily.
- Inactive disturbed areas shall be revegetated as soon as feasible to prevent soil erosion.
- For disturbed surfaces to be left inactive for 4 or more days and that will not be revegetated, a chemical stabilizer shall be applied per manufacturer's instruction.
- For unpaved roads, chemical stabilizers shall be applied or the roads shall be watered once per hour during active operation.
- Vehicle speed on unpaved roads shall be limited to 15 mph.
- For open storage piles that will remain on-site for 2 or more days, water shall be applied once per hour, or coverings shall be installed.
- For paved road track-out, all haul vehicles shall be covered, or shall comply with vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.

- During high wind conditions (wind speeds in excess of 25 mph), all earthmoving activities shall cease or water shall be applied to soil not more than 15 minutes prior to disturbing such soil.

7.1.2 VOC Emissions

Standard Condition AIR-2. Project applicant(s) shall comply with SCAQMD Rule 1113 to minimize emissions of VOCs. Architectural coatings shall be selected so that the average VOC content of the coatings does not exceed the amount specified in the rule. Because this measure is required by rule, it is not a mitigation measure in the context of CEQA.

7.1.3 Exhaust Emissions

Mitigation Measure AIR-3. To reduce short-term construction emissions, the project applicant(s) for all project phases shall require their contractors to implement the Enhanced Exhaust Control Practices (listed below) or whatever mitigation measures are recommended by SCAQMD at the time individual portions of the site undergo construction.
Enhanced Exhaust Control Practices

- The project shall provide a plan, for approval by the City , demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a projectwide fleet-average 20 percent NO_X reduction, 20 percent ROG reduction, and 45 percent particulate reduction compared to the 2011 ARB fleet average, as contained in the URBEMIS output sheets in Appendix A. Acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. SCAQMD, which is the resource agency for air quality in the project area, can be used in an advisory rule to demonstrate fleet-wide reductions. SCAQMD's mitigation measures for off-road engines can be used to identify an equipment fleet that achieves this reduction (SCAQMD 2007b).

- The project applicant(s) of each project phase or its representative shall submit to the City a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 hp, that would be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the hp rating, engine production year, and projected hours of use for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an

inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of heavy-duty off-road equipment, the project representative shall provide the City with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. SCAQMD staff and/or other officials may conduct periodic site inspections to determine compliance.

- If at the time of construction, SCAQMD has adopted a regulation or new guidance applicable to construction emissions, compliance with the regulation or new guidance may completely or partially replace this mitigation if it is equal to or more effective than the mitigation contained herein, and if the City so permits. Such a determination must be supported by a project-level analysis and be approved by the City.

7.1.4 Localized Emissions

Mitigation Measure AIR-4. Prior to construction of each development phase of on-site land uses that are proposed within 1,500 feet of sensitive receptors, each project applicant shall perform a project-level CEQA analysis that includes a detailed LST analysis of construction-generated emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ to assess the impact at nearby sensitive receptors. The LST analysis shall be performed in accordance with applicable SCAQMD guidance that is in place at the time the analysis is performed. The project-level analysis shall incorporate detailed parameters of the construction equipment and activities, including the year during which construction would be performed, as well as the proximity of potentially affected receptors, including receptors proposed by the project that exist at the time the construction activity would occur.

Implementation of Standard Conditions AIR-1 and AIR-2, and mitigation measures AIR-3 and AIR-4 would reduce construction-related emissions of criteria air pollutants and ozone precursors. However, emissions associated with the development envisioned under the Community Plan would still exceed SCAQMD's applicable significance thresholds. The impact would be **significant and unavoidable**.

7.2 OPERATIONS EMISSIONS

Mitigation to reduce mobile source emissions due to the implementation of the Community Plan addresses reducing the number of motor vehicle trips and reducing the emissions of individual vehicles under the control of the project applicant(s). The following measures shall be implemented by the applicant(s) unless it can be demonstrated to the City that the measures would not be feasible.

- **Mitigation Measure AIR-5.** The project applicant(s) for all project phases shall require the commercial development operator(s) to operate, maintain, and promote a ride-share program for employees of the various businesses.
- **Mitigation Measure AIR-6.** The project applicant(s) for all project phases shall include one or more secure bicycle parking areas within the property and encourage bicycle riding for both employees and customers.
- **Mitigation Measure AIR-7.** The proposed structures shall be designed to meet Title 24 + 20 percent energy efficiency standards and shall include photovoltaic cells on the rooftops to achieve an additional 25 percent reduction in electricity use on an average sunny day.
- **Mitigation Measure AIR-8.** The City shall ensure that all commercial developments include shower and locker facilities for employees to encourage bicycle, walking, and jogging as options for commuting.
- **Mitigation Measure AIR-9.** The project applicant(s) for all project phases shall require that all equipment operated by the businesses within the facility be electric or use nondiesel engines.
- **Mitigation Measure AIR-10.** All truck loading and unloading docks shall be equipped with one 110/208-volt power outlet for every two-dock door. Diesel trucks shall be prohibited from idling more than 5 minutes and must be required to connect to the 110/208-volt power to run any auxiliary equipment. Signage outlining the idling restrictions shall be provided.

Implementation of mitigation measures AIR-5 through AIR-10 would reduce criteria air pollutant and ozone precursor emissions associated with operation of the project. However, the exact reduction achieved by implementation of these measures cannot be reasonably quantified for the Community Plan. The traffic analysis for the project accounts for some of the unique attributes of the proposed land use plans (such as the proximity of residential and commercial

land uses to activity centers and to transit service). Nonetheless, operational emissions due to implementation of the Community Plan would remain well above the SCAQMD significance thresholds. As a result, this impact would be **significant and unavoidable**.

7.3 TOXIC AIR CONTAMINANT EMISSIONS

Mitigation Measure AIR-11: The following measures shall be implemented to reduce exposure of sensitive receptors to operational emissions of TACs**:**

- Proposed commercial land uses that have the potential to emit TACs or host TAC-generating activity (e.g., loading docks) shall be located away from existing and proposed on-site sensitive receptors such that they do not expose sensitive receptors to TAC emissions that exceed an incremental increase of 10 in 1 million for the cancer risk and/or a noncarcinogenic Hazard Index of 1.0.
- Where necessary to reduce exposure of sensitive receptors to an incremental increase of 10 in 1 million for the cancer risk and/or a noncarcinogenic Hazard Index of 1.0, proposed commercial and industrial land uses that would host diesel trucks shall incorporate idle reduction strategies that reduce the main propulsion engine idling time through alternative technologies, such as IdleAire, electrification of truck parking, and alternative energy sources for TRUs, to allow diesel engines to be completely turned off.
- Signs shall be posted in at all loading docks and truck loading areas that indicate that diesel-powered delivery trucks must be shut off when not in use for longer than 5 minutes on the premises in order to reduce idling emissions. This measure is consistent with the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling, which was approved by the California Office of Administrative Law in January 2005.
- Proposed facilities that would require the long-term use of diesel equipment and heavy-duty trucks shall develop a plan to reduce emissions, which may include such measures as scheduling such activities when the residential uses are the least occupied, and requiring such equipment to be shut off when not in use and prohibiting heavy-trucks from idling.
- When determining the exact type of facility that would occupy the proposed commercial space, the project shall take into consideration its toxic-producing potential.
- Commercial land uses that accommodate more than 100 trucks per day, or 40 trucks equipped with TRUs, within 1,000 feet of sensitive receptors (e.g., residences or schools)

shall perform a site-specific project-level HRA in accordance with SCAQMD guidance for projects generating or attracting vehicular trips, especially heavy-duty diesel-fueled vehicles (SCAQMD 2003b). If the incremental increase in cancer risk determined by the HRA exceeds the threshold of significance recommended by SCAQMD or ARB at the time (if any), then all feasible mitigation measures shall be employed to minimize the impact.

Mitigation Measure AIR-12: The City shall verify that the following measures are be implemented by new developments to reduce exposure of sensitive receptors to emissions of TACs from POLB and stationary sources in the vicinity of the project area**:**

- All proposed homes in the Community Plan area shall be equipped with filter systems with high Minimum Efficiency Reporting Value for removal of small particles (such as 0.3 micron) at all air intake points to the home. All proposed houses shall be constructed with mechanical ventilation systems that would allow occupants to keep windows and doors closed and allow for the introduction of fresh outside air, without the requirement of open windows.
- The heating, ventilation, and air conditioning (HVAC) systems shall be used to maintain all residential units under positive pressure at all times.
- Prior to the filing of the final map, Conditions, Covenants, and Restrictions (CC&Rs) shall be prepared and submitted to and approved by the City and shall contain provisions/notifications advising future residents of the potential for acute and chronic health effects and risks associated with exposure to diesel PM from POLB and other stationary sources of TACs. The CC&Rs shall also indicate that it is the homeowner's responsibility to maintain and clean the filter systems regularly, according to manufacturer's specifications, for proper operation.
- An ongoing education and maintenance plan about the filtration systems associated with HVAC shall be developed and implemented for residences.
- To the extent feasible, sensitive receptors shall be located as far away from POLB as possible.

Mitigation Measures AIR-13. The following additional guidelines, which are recommended in ARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (ARB 2005), shall be implemented. The guidelines are considered to be advisory and not regulatory:

- Sensitive receptors, such as residential units and daycare centers, shall not be located in the same building as dry-cleaning operations that use perchloroethylene. Dry-cleaning operations that use perchloroethylene shall not be located within 300 feet of any sensitive receptor. A setback of 500 feet shall be provided for operations with two or more machines.

Implementation of Mitigation Measures AIR-11 through AIR-13 would reduce concentrations that sensitive receptors would be exposed to for time spent indoors. Implementation of the above mitigation would also disclose to those considering residing in the project the potential risks involved. However, the mitigation would not reduce exposure of sensitive receptors to substantial pollutant concentrations for time spent outdoors. The impact cannot be shown to be reduced to a level considered less than significant and, therefore, is considered **significant and unavoidable**.

7.4 ODORS

Mitigation Measure AIR-14: The following measures shall be implemented to control exposure of sensitive receptors to operational odorous emissions. All project applicant(s) shall implement the following measures:

- The City shall consider the odor-producing potential of land uses when reviewing future development proposals and when the exact type of facility that would occupy areas zoned for commercial, industrial, or mixed-use land uses is determined. Facilities that have the potential to emit objectionable odors shall be located as far away as feasible from existing and proposed sensitive receptors.
- Before the approval of building permits, odor control devices shall be identified to mitigate the exposure of receptors to objectionable odors if a potential odor-producing source is to occupy an area zoned for commercial land use. The identified odor control devices shall be installed before the issuance of certificates of occupancy for the potentially odor-producing use. The odor-producing potential of a source and control devices shall be determined in coordination with SCAQMD and based on the number of complaints associated with existing sources of the same nature.
- Truck loading docks and delivery areas shall be located as far away as feasible from existing and proposed sensitive receptors.
- Signs shall be posted at all loading docks and truck loading areas that indicate that diesel-powered delivery trucks must be shut off when not in use for longer than 5 minutes on

the premises in order to reduce idling emissions. This measure is consistent with the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling, which was approved by California's Office of Administrative Law in January 2005. (This measure is also required by Mitigation Measure AIR-11 to limit TAC emissions.)

- Proposed commercial and industrial land uses that have the potential to host diesel trucks shall incorporate idle reduction strategies that reduce the main propulsion engine idling time through alternative technologies, such as IdleAire, electrification of truck parking, and alternative energy sources for TRUs, to allow diesel engines to be completely turned off. (This measure is also required by Mitigation Measure AIR-11 to limit TAC emissions.)

In addition, measures identified under Mitigation Measure AIR-12 to reduce indoor exposure to TACs would also result in a reduction in the intensity of offensive odors from the surrounding odor sources. Implementation of Mitigation Measure AIR-14 would provide adequate controls for minor odor sources. As a result, this impact would be reduced to a **less than significant** level.

CHAPTER 8.0
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APPENDIX A

URBEMIS OUTPUT DATA SHEETS

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Work\Projects\Long Beach Community Plan\Tech Report\Urbemis\Construction Scenarios\LBDTCP Residential.urb924

Project Name: LBDTCP Residential

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	72.72	52.66	57.33	0.07	225.01	2.68	227.69	46.99	2.46	49.45	8,572.43

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/28/2011 Active Days: 41	6.46	**52.66**	30.12	0.00	225.01	**2.68**	227.69	46.99	**2.46**	49.45	5,119.57
Mass Grading 01/01/2011-02/28/2011	6.46	52.66	30.12	0.00	225.01	2.68	227.69	46.99	2.46	49.45	5,119.57
Mass Grading Dust	0.00	0.00	0.00	0.00	225.00	0.00	225.00	46.99	0.00	46.99	0.00
Mass Grading Off Road Diesel	6.40	52.55	28.34	0.00	0.00	2.67	2.67	0.00	2.46	2.46	4,902.01
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.10	1.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.55
Time Slice 3/1/2011-8/31/2011 Active Days: 132	5.74	30.68	57.33	**0.07**	0.29	1.81	2.10	0.10	1.65	1.76	8,572.43
Building 03/01/2011-08/31/2011	5.74	30.68	57.33	0.07	0.29	1.81	2.10	0.10	1.65	1.76	8,572.43
Building Off Road Diesel	3.51	16.81	11.35	0.00	0.00	1.19	1.19	0.00	1.09	1.09	1,746.33
Building Vendor Trips	1.08	11.73	9.47	0.02	0.08	0.50	0.58	0.03	0.46	0.49	2,350.71
Building Worker Trips	1.14	2.14	36.51	0.05	0.21	0.12	0.33	0.08	0.10	0.18	4,475.40
Time Slice 9/1/2011-10/31/2011 Active Days: 43	**72.72**	0.20	3.38	0.00	0.02	0.01	0.03	0.01	0.01	0.02	414.69
Coating 09/01/2011-10/31/2011	72.72	0.20	3.38	0.00	0.02	0.01	0.03	0.01	0.01	0.02	414.69

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Architectural Coating	72.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.11	0.20	3.38	0.00	0.02	0.01	0.03	0.01	0.01	0.02	414.69
Time Slice 11/1/2011-12/30/2011 Active Days: 44	3.62	19.01	11.59	0.01	0.02	1.56	1.58	0.01	1.44	1.44	1,816.81
Asphalt 11/01/2011-12/31/2011	3.62	19.01	11.59	0.01	0.02	1.56	1.58	0.01	1.44	1.44	1,816.81
Paving Off-Gas	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.70	16.30	9.26	0.00	0.00	1.45	1.45	0.00	1.33	1.33	1,272.41
Paving On Road Diesel	0.22	2.63	1.06	0.00	0.01	0.11	0.12	0.00	0.10	0.11	389.01
Paving Worker Trips	0.04	0.07	1.27	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.40

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 2/28/2011 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 45

Maximum Daily Acreage Disturbed: 11.25

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 11.25

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 3/1/2011 - 8/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 7 hours per day

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1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/1/2011 - 10/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Work\Projects\Long Beach Community Plan\Tech Report\Urbemis\Construction Scenarios\LBDTCP Commercial.urb924

Project Name: LBDTCP Office

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	74.75	23.50	21.86	0.02	34.41	1.35	35.58	7.19	1.24	8.27	3,121.93

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/28/2011 Active Days: 41	2.86	**23.50**	12.97	0.00	**34.41**	1.18	**35.58**	**7.19**	1.08	**8.27**	2,371.63
Mass Grading 01/01/2011-02/28/2011	2.86	23.50	12.97	0.00	34.41	1.18	35.58	7.19	1.08	8.27	2,371.63
Mass Grading Dust	0.00	0.00	0.00	0.00	34.40	0.00	34.40	7.18	0.00	7.18	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.32
Time Slice 3/1/2011-8/31/2011 Active Days: 132	3.83	17.73	**21.86**	**0.02**	0.07	1.23	1.30	0.02	1.13	1.16	**3,121.93**
Building 03/01/2011-08/31/2011	3.83	17.73	21.86	0.02	0.07	1.23	1.30	0.02	1.13	1.16	3,121.93
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.14	1.49	1.27	0.00	0.01	0.06	0.07	0.00	0.06	0.06	307.30
Building Worker Trips	0.31	0.57	9.74	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,193.44
Time Slice 9/1/2011-10/31/2011 Active Days: 43	**74.75**	0.05	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	108.42
Coating 09/01/2011-10/31/2011	74.75	0.05	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	108.42

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Architectural Coating	74.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	108.42
Time Slice 11/1/2011-12/30/2011 Active Days: 44	2.68	15.67	11.26	0.00	0.01	**1.35**	1.36	0.00	**1.24**	1.25	1,580.14
Asphalt 11/01/2011-12/31/2011	2.68	15.67	11.26	0.00	0.01	1.35	1.36	0.00	1.24	1.25	1,580.14
Paving Off-Gas	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.48	15.15	9.07	0.00	0.00	1.33	1.33	0.00	1.22	1.22	1,272.04
Paving On Road Diesel	0.03	0.40	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	59.47
Paving Worker Trips	0.06	0.12	2.03	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.63

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 2/28/2011 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 6.89

Maximum Daily Acreage Disturbed: 1.72

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 1.72

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 3/1/2011 - 8/31/2011 - Default Building Construction Description

Off-Road Equipment:

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1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/1/2011 - 10/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Work\Projects\Long Beach Community Plan\Tech Report\Urbemis\Construction Scenarios\LBDTCP Retail.urb924

Project Name: LBDTCP Retail

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	19.14	23.50	12.97	0.00	8.81	1.18	9.98	1.84	1.08	2.92	2,371.63

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/28/2011 Active Days: 41	2.86	**23.50**	**12.97**	0.00	**8.81**	**1.18**	**9.98**	**1.84**	**1.08**	**2.92**	**2,371.63**
Mass Grading 01/01/2011-02/28/2011	2.86	23.50	12.97	0.00	8.81	1.18	9.98	1.84	1.08	2.92	2,371.63
Mass Grading Dust	0.00	0.00	0.00	0.00	8.80	0.00	8.80	1.84	0.00	1.84	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.32
Time Slice 3/1/2011-8/31/2011 Active Days: 132	1.23	9.03	7.49	**0.00**	0.02	0.57	0.58	0.01	0.52	0.53	1,277.57
Building 03/01/2011-08/31/2011	1.23	9.03	7.49	0.00	0.02	0.57	0.58	0.01	0.52	0.53	1,277.57
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.00	0.54	0.54	0.00	0.50	0.50	893.39
Building Vendor Trips	0.04	0.38	0.33	0.00	0.00	0.02	0.02	0.00	0.01	0.02	78.67
Building Worker Trips	0.08	0.15	2.49	0.00	0.01	0.01	0.02	0.01	0.01	0.01	305.52
Time Slice 9/1/2011-10/31/2011 Active Days: 43	**19.14**	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.75
Coating 09/01/2011-10/31/2011	19.14	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.75

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Architectural Coating	19.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.75
Time Slice 11/1/2011-12/30/2011 Active Days: 44	1.92	11.46	8.72	0.00	0.01	0.99	1.00	0.00	0.91	0.91	1,211.99
Asphalt 11/01/2011-12/31/2011	1.92	11.46	8.72	0.00	0.01	0.99	1.00	0.00	0.91	0.91	1,211.99
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.26	6.91	0.00	0.00	0.98	0.98	0.00	0.90	0.90	979.23
Paving On Road Diesel	0.01	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.21
Paving Worker Trips	0.06	0.10	1.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.55

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 2/28/2011 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 1.76

Maximum Daily Acreage Disturbed: 0.44

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 0.44

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 3/1/2011 - 8/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

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2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 9/1/2011 - 10/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Work\Projects\Long Beach Community Plan\Tech Report\Urbemis\Construction Scenarios\LBDTCP Restaurant.urb924

Project Name: LBDTCP Restaurant

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	4.78	23.50	12.97	0.00	2.21	1.18	3.38	0.46	1.08	1.54	2,371.63

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/28/2011 Active Days: 41	2.86	**23.50**	**12.97**	0.00	**2.21**	**1.18**	**3.38**	**0.46**	**1.08**	**1.54**	**2,371.63**
Mass Grading 01/01/2011-02/28/2011	2.86	23.50	12.97	0.00	2.21	1.18	3.38	0.46	1.08	1.54	2,371.63
Mass Grading Dust	0.00	0.00	0.00	0.00	2.20	0.00	2.20	0.46	0.00	0.46	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.32
Time Slice 3/1/2011-8/31/2011 Active Days: 132	1.14	8.64	5.38	0.00	0.00	0.55	0.55	0.00	0.51	0.51	989.43
Building 03/01/2011-08/31/2011	1.14	8.64	5.38	0.00	0.00	0.55	0.55	0.00	0.51	0.51	989.43
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.00	0.54	0.54	0.00	0.50	0.50	893.39
Building Vendor Trips	0.01	0.10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.67
Building Worker Trips	0.02	0.04	0.62	0.00	0.00	0.00	0.01	0.00	0.00	0.00	76.38
Time Slice 9/1/2011-10/31/2011 Active Days: 43	**4.78**	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.94
Coating 09/01/2011-10/31/2011	4.78	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.94

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Architectural Coating	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.94
Time Slice 11/1/2011-12/30/2011 Active Days: 44	1.89	11.39	8.69	**0.00**	0.01	0.98	0.99	0.00	0.90	0.91	1,200.58
Asphalt 11/01/2011-12/31/2011	1.89	11.39	8.69	0.00	0.01	0.98	0.99	0.00	0.90	0.91	1,200.58
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.26	6.91	0.00	0.00	0.98	0.98	0.00	0.90	0.90	979.23
Paving On Road Diesel	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.80
Paving Worker Trips	0.06	0.10	1.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.55

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 2/28/2011 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 0.44

Maximum Daily Acreage Disturbed: 0.11

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 0.11

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 3/1/2011 - 8/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

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2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 9/1/2011 - 10/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Work\Projects\Long Beach Community Plan\Tech Report\Urbemis\Construction Scenarios\LBDTCP Hotel.urb924

Project Name: LBDTCP Hotel

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	19.93	23.50	12.97	0.00	9.21	1.18	10.38	1.92	1.08	3.00	2,371.63

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/28/2011 Active Days: 41	2.86	**23.50**	**12.97**	0.00	**9.21**	**1.18**	**10.38**	**1.92**	**1.08**	**3.00**	**2,371.63**
Mass Grading 01/01/2011-02/28/2011	2.86	23.50	12.97	0.00	9.21	1.18	10.38	1.92	1.08	3.00	2,371.63
Mass Grading Dust	0.00	0.00	0.00	0.00	9.20	0.00	9.20	1.92	0.00	1.92	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.32
Time Slice 3/1/2011-8/31/2011 Active Days: 132	1.23	9.05	7.61	**0.00**	0.02	0.57	0.59	0.01	0.52	0.53	1,293.58
Building 03/01/2011-08/31/2011	1.23	9.05	7.61	0.00	0.02	0.57	0.59	0.01	0.52	0.53	1,293.58
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.00	0.54	0.54	0.00	0.50	0.50	893.39
Building Vendor Trips	0.04	0.40	0.34	0.00	0.00	0.02	0.02	0.00	0.02	0.02	81.95
Building Worker Trips	0.08	0.15	2.60	0.00	0.02	0.01	0.02	0.01	0.01	0.01	318.25
Time Slice 9/1/2011-10/31/2011 Active Days: 43	**19.93**	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.91
Coating 09/01/2011-10/31/2011	19.93	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.91

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Architectural Coating	19.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.91
Time Slice 11/1/2011-12/30/2011 Active Days: 44	1.92	11.47	8.73	0.00	0.01	0.99	1.00	0.00	0.91	0.91	1,212.69
Asphalt 11/01/2011-12/31/2011	1.92	11.47	8.73	0.00	0.01	0.99	1.00	0.00	0.91	0.91	1,212.69
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.26	6.91	0.00	0.00	0.98	0.98	0.00	0.90	0.90	979.23
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	15.91
Paving Worker Trips	0.06	0.10	1.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.55

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 2/28/2011 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 1.84

Maximum Daily Acreage Disturbed: 0.46

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 0.46

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 3/1/2011 - 8/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

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2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 9/1/2011 - 10/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Work\Projects\Long Beach Community Plan\Tech Report\Urbemis\Construction Scenarios\LBDTCP Residential.urb924

Project Name: LBDTCP Residential

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	72.72	52.66	57.33	0.07	225.01	2.68	227.69	46.99	2.46	49.45	8,572.43

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/28/2011 Active Days: 41	6.46	**52.66**	30.12	0.00	225.01	**2.68**	227.69	46.99	**2.46**	49.45	5,119.57
Mass Grading 01/01/2011-02/28/2011	6.46	52.66	30.12	0.00	225.01	2.68	227.69	46.99	2.46	49.45	5,119.57
Mass Grading Dust	0.00	0.00	0.00	0.00	225.00	0.00	225.00	46.99	0.00	46.99	0.00
Mass Grading Off Road Diesel	6.40	52.55	28.34	0.00	0.00	2.67	2.67	0.00	2.46	2.46	4,902.01
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.06	0.10	1.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.55
Time Slice 3/1/2011-8/31/2011 Active Days: 132	5.74	30.68	57.33	**0.07**	0.29	1.81	2.10	0.10	1.65	1.76	8,572.43
Building 03/01/2011-08/31/2011	5.74	30.68	57.33	0.07	0.29	1.81	2.10	0.10	1.65	1.76	8,572.43
Building Off Road Diesel	3.51	16.81	11.35	0.00	0.00	1.19	1.19	0.00	1.09	1.09	1,746.33
Building Vendor Trips	1.08	11.73	9.47	0.02	0.08	0.50	0.58	0.03	0.46	0.49	2,350.71
Building Worker Trips	1.14	2.14	36.51	0.05	0.21	0.12	0.33	0.08	0.10	0.18	4,475.40
Time Slice 9/1/2011-10/31/2011 Active Days: 43	**72.72**	0.20	3.38	0.00	0.02	0.01	0.03	0.01	0.01	0.02	414.69
Coating 09/01/2011-10/31/2011	72.72	0.20	3.38	0.00	0.02	0.01	0.03	0.01	0.01	0.02	414.69

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Architectural Coating	72.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.11	0.20	3.38	0.00	0.02	0.01	0.03	0.01	0.01	0.02	414.69
Time Slice 11/1/2011-12/30/2011 Active Days: 44	3.62	19.01	11.59	0.01	0.02	1.56	1.58	0.01	1.44	1.44	1,816.81
Asphalt 11/01/2011-12/31/2011	3.62	19.01	11.59	0.01	0.02	1.56	1.58	0.01	1.44	1.44	1,816.81
Paving Off-Gas	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.70	16.30	9.26	0.00	0.00	1.45	1.45	0.00	1.33	1.33	1,272.41
Paving On Road Diesel	0.22	2.63	1.06	0.00	0.01	0.11	0.12	0.00	0.10	0.11	389.01
Paving Worker Trips	0.04	0.07	1.27	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.40

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 2/28/2011 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 45

Maximum Daily Acreage Disturbed: 11.25

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 11.25

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 3/1/2011 - 8/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 7 hours per day

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1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/1/2011 - 10/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Work\Projects\Long Beach Community Plan\Tech Report\Urbemis\Construction Scenarios\LBDTCP Commercial.urb924

Project Name: LBDTCP Office

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	74.75	23.50	21.86	0.02	34.41	1.35	35.58	7.19	1.24	8.27	3,121.93

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/28/2011 Active Days: 41	2.86	**23.50**	12.97	0.00	**34.41**	1.18	**35.58**	**7.19**	1.08	**8.27**	2,371.63
Mass Grading 01/01/2011-02/28/2011	2.86	23.50	12.97	0.00	34.41	1.18	35.58	7.19	1.08	8.27	2,371.63
Mass Grading Dust	0.00	0.00	0.00	0.00	34.40	0.00	34.40	7.18	0.00	7.18	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.32
Time Slice 3/1/2011-8/31/2011 Active Days: 132	3.83	17.73	**21.86**	**0.02**	0.07	1.23	1.30	0.02	1.13	1.16	**3,121.93**
Building 03/01/2011-08/31/2011	3.83	17.73	21.86	0.02	0.07	1.23	1.30	0.02	1.13	1.16	3,121.93
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.14	1.49	1.27	0.00	0.01	0.06	0.07	0.00	0.06	0.06	307.30
Building Worker Trips	0.31	0.57	9.74	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,193.44
Time Slice 9/1/2011-10/31/2011 Active Days: 43	**74.75**	0.05	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	108.42
Coating 09/01/2011-10/31/2011	74.75	0.05	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	108.42

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Architectural Coating	74.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	108.42
Time Slice 11/1/2011-12/30/2011 Active Days: 44	2.68	15.67	11.26	0.00	0.01	**1.35**	1.36	0.00	**1.24**	1.25	1,580.14
Asphalt 11/01/2011-12/31/2011	2.68	15.67	11.26	0.00	0.01	1.35	1.36	0.00	1.24	1.25	1,580.14
Paving Off-Gas	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.48	15.15	9.07	0.00	0.00	1.33	1.33	0.00	1.22	1.22	1,272.04
Paving On Road Diesel	0.03	0.40	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	59.47
Paving Worker Trips	0.06	0.12	2.03	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.63

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 2/28/2011 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 6.89

Maximum Daily Acreage Disturbed: 1.72

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 1.72

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 3/1/2011 - 8/31/2011 - Default Building Construction Description

Off-Road Equipment:

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1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 9/1/2011 - 10/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Work\Projects\Long Beach Community Plan\Tech Report\Urbemis\Construction Scenarios\LBDTCP Retail.urb924

Project Name: LBDTCP Retail

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	19.14	23.50	12.97	0.00	8.81	1.18	9.98	1.84	1.08	2.92	2,371.63

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/28/2011 Active Days: 41	2.86	**23.50**	**12.97**	0.00	**8.81**	**1.18**	**9.98**	**1.84**	**1.08**	**2.92**	**2,371.63**
Mass Grading 01/01/2011-02/28/2011	2.86	23.50	12.97	0.00	8.81	1.18	9.98	1.84	1.08	2.92	2,371.63
Mass Grading Dust	0.00	0.00	0.00	0.00	8.80	0.00	8.80	1.84	0.00	1.84	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.32
Time Slice 3/1/2011-8/31/2011 Active Days: 132	1.23	9.03	7.49	**0.00**	0.02	0.57	0.58	0.01	0.52	0.53	1,277.57
Building 03/01/2011-08/31/2011	1.23	9.03	7.49	0.00	0.02	0.57	0.58	0.01	0.52	0.53	1,277.57
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.00	0.54	0.54	0.00	0.50	0.50	893.39
Building Vendor Trips	0.04	0.38	0.33	0.00	0.00	0.02	0.02	0.00	0.01	0.02	78.67
Building Worker Trips	0.08	0.15	2.49	0.00	0.01	0.01	0.02	0.01	0.01	0.01	305.52
Time Slice 9/1/2011-10/31/2011 Active Days: 43	**19.14**	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.75
Coating 09/01/2011-10/31/2011	19.14	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.75

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Architectural Coating	19.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.75
Time Slice 11/1/2011-12/30/2011 Active Days: 44	1.92	11.46	8.72	0.00	0.01	0.99	1.00	0.00	0.91	0.91	1,211.99
Asphalt 11/01/2011-12/31/2011	1.92	11.46	8.72	0.00	0.01	0.99	1.00	0.00	0.91	0.91	1,211.99
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.26	6.91	0.00	0.00	0.98	0.98	0.00	0.90	0.90	979.23
Paving On Road Diesel	0.01	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.21
Paving Worker Trips	0.06	0.10	1.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.55

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 2/28/2011 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 1.76

Maximum Daily Acreage Disturbed: 0.44

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 0.44

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 3/1/2011 - 8/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

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2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 9/1/2011 - 10/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Work\Projects\Long Beach Community Plan\Tech Report\Urbemis\Construction Scenarios\LBDTCP Restaurant.urb924

Project Name: LBDTCP Restaurant

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	4.78	23.50	12.97	0.00	2.21	1.18	3.38	0.46	1.08	1.54	2,371.63

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/28/2011 Active Days: 41	2.86	**23.50**	**12.97**	0.00	**2.21**	**1.18**	**3.38**	**0.46**	**1.08**	**1.54**	**2,371.63**
Mass Grading 01/01/2011-02/28/2011	2.86	23.50	12.97	0.00	2.21	1.18	3.38	0.46	1.08	1.54	2,371.63
Mass Grading Dust	0.00	0.00	0.00	0.00	2.20	0.00	2.20	0.46	0.00	0.46	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.32
Time Slice 3/1/2011-8/31/2011 Active Days: 132	1.14	8.64	5.38	0.00	0.00	0.55	0.55	0.00	0.51	0.51	989.43
Building 03/01/2011-08/31/2011	1.14	8.64	5.38	0.00	0.00	0.55	0.55	0.00	0.51	0.51	989.43
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.00	0.54	0.54	0.00	0.50	0.50	893.39
Building Vendor Trips	0.01	0.10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.67
Building Worker Trips	0.02	0.04	0.62	0.00	0.00	0.00	0.01	0.00	0.00	0.00	76.38
Time Slice 9/1/2011-10/31/2011 Active Days: 43	**4.78**	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.94
Coating 09/01/2011-10/31/2011	4.78	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.94

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Architectural Coating	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.94
Time Slice 11/1/2011-12/30/2011 Active Days: 44	1.89	11.39	8.69	**0.00**	0.01	0.98	0.99	0.00	0.90	0.91	1,200.58
Asphalt 11/01/2011-12/31/2011	1.89	11.39	8.69	0.00	0.01	0.98	0.99	0.00	0.90	0.91	1,200.58
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.26	6.91	0.00	0.00	0.98	0.98	0.00	0.90	0.90	979.23
Paving On Road Diesel	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.80
Paving Worker Trips	0.06	0.10	1.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.55

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 2/28/2011 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 0.44

Maximum Daily Acreage Disturbed: 0.11

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 0.11

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 3/1/2011 - 8/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

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2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 9/1/2011 - 10/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Work\Projects\Long Beach Community Plan\Tech Report\Urbemis\Construction Scenarios\LBDTCP Hotel.urb924

Project Name: LBDTCP Hotel

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	19.93	23.50	12.97	0.00	9.21	1.18	10.38	1.92	1.08	3.00	2,371.63

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/3/2011-2/28/2011 Active Days: 41	2.86	**23.50**	**12.97**	0.00	**9.21**	**1.18**	**10.38**	**1.92**	**1.08**	**3.00**	**2,371.63**
Mass Grading 01/01/2011-02/28/2011	2.86	23.50	12.97	0.00	9.21	1.18	10.38	1.92	1.08	3.00	2,371.63
Mass Grading Dust	0.00	0.00	0.00	0.00	9.20	0.00	9.20	1.92	0.00	1.92	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.32
Time Slice 3/1/2011-8/31/2011 Active Days: 132	1.23	9.05	7.61	**0.00**	0.02	0.57	0.59	0.01	0.52	0.53	1,293.58
Building 03/01/2011-08/31/2011	1.23	9.05	7.61	0.00	0.02	0.57	0.59	0.01	0.52	0.53	1,293.58
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.00	0.54	0.54	0.00	0.50	0.50	893.39
Building Vendor Trips	0.04	0.40	0.34	0.00	0.00	0.02	0.02	0.00	0.02	0.02	81.95
Building Worker Trips	0.08	0.15	2.60	0.00	0.02	0.01	0.02	0.01	0.01	0.01	318.25
Time Slice 9/1/2011-10/31/2011 Active Days: 43	**19.93**	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.91
Coating 09/01/2011-10/31/2011	19.93	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.91

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Architectural Coating	19.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.91
Time Slice 11/1/2011-12/30/2011 Active Days: 44	1.92	11.47	8.73	0.00	0.01	0.99	1.00	0.00	0.91	0.91	1,212.69
Asphalt 11/01/2011-12/31/2011	1.92	11.47	8.73	0.00	0.01	0.99	1.00	0.00	0.91	0.91	1,212.69
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.26	6.91	0.00	0.00	0.98	0.98	0.00	0.90	0.90	979.23
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	15.91
Paving Worker Trips	0.06	0.10	1.77	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.55

Phase Assumptions

Phase: Mass Grading 1/1/2011 - 2/28/2011 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 1.84

Maximum Daily Acreage Disturbed: 0.46

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 0.46

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 3/1/2011 - 8/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

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2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 9/1/2011 - 10/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Work\Projects\Long Beach Community Plan\Tech Report\Urbemis\LBDTCP Operational.urb924

Project Name: Long Beach Downtown Community Plan - Operations

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	284.88	70.16	46.26	0.00	0.16	0.16	87,841.44

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	252.06	230.11	2,800.77	9.41	1,538.14	297.28	928,472.93

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	536.94	300.27	2,847.03	9.41	1,538.30	297.44	1,016,314.37

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	5.31	70.06	38.53	0.00	0.13	0.13	87,827.40

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Hearth - No Summer Emissions

Landscape	0.61	0.10	7.73	0.00	0.03	0.03	14.04
Consumer Products	256.50						
Architectural Coatings	22.46						
TOTALS (lbs/day, unmitigated)	284.88	70.16	46.26	0.00	0.16	0.16	87,841.44

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 10% to 0%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 100%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Condo/townhouse high rise	118.69	103.49	1,282.38	4.26	692.55	133.97	419,541.09
Quality resturant	20.56	20.53	244.56	0.83	136.82	26.42	82,262.95
Hotel	17.54	15.37	182.57	0.62	102.32	19.76	61,497.68
Regnl shop. center	38.98	38.35	454.31	1.55	255.08	49.24	153,245.70
General office building	56.29	52.37	636.95	2.15	351.37	67.89	211,925.51
TOTALS (lbs/day, unmitigated)	252.06	230.11	2,800.77	9.41	1,538.14	297.28	928,472.93

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 80 Season: Summer

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Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse high rise	78.12	7.95	dwelling units	5,000.00	39,750.00	401,586.29
Quality resturant		89.95	1000 sq ft	96.00	8,635.20	79,374.75
Hotel		8.17	rooms	800.00	6,536.00	59,363.22
Regnl shop. center		42.95	1000 sq ft	384.00	16,492.80	147,989.89
General office building		13.35	1000 sq ft	1,500.00	20,025.00	203,804.44
					91,439.00	892,118.59

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	50.2	0.0	100.0	0.0
Light Truck < 3750 lbs	6.8	0.0	100.0	0.0
Light Truck 3751-5750 lbs	24.0	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.8	0.0	83.3	16.7
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.6	34.6	65.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.3	0.0	92.3	7.7

Travel Conditions

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	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Quality resturant				8.0	4.0	88.0
Hotel				5.0	2.5	92.5
Regnl shop. center				2.0	1.0	97.0
General office building				35.0	17.5	47.5

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Work\Projects\Long Beach Community Plan\Tech Report\Urbemis\LBDTCP Operational.urb924

Project Name: Long Beach Downtown Community Plan - Operations

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	285.89	97.71	50.29	0.18	2.37	2.34	123,121.52

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	274.23	277.47	2,628.23	7.84	1,538.14	297.28	839,424.90

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	560.12	375.18	2,678.52	8.02	1,540.51	299.62	962,546.42

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	5.31	70.06	38.53	0.00	0.13	0.13	87,827.40

Hearth	1.62	27.65	11.76	0.18	2.24	2.21	35,294.12
Landscaping - No Winter Emissions							
Consumer Products	256.50						
Architectural Coatings	22.46						
TOTALS (lbs/day, unmitigated)	285.89	97.71	50.29	0.18	2.37	2.34	123,121.52

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 10% to 0%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 100%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Condo/townhouse high rise	126.72	124.83	1,202.38	3.55	692.55	133.97	379,456.21
Quality resturant	23.31	24.75	230.05	0.69	136.82	26.42	74,340.05
Hotel	18.56	18.52	171.85	0.52	102.32	19.76	55,572.26
Regnl shop. center	43.76	46.21	427.93	1.29	255.08	49.24	138,473.89
General office building	61.88	63.16	596.02	1.79	351.37	67.89	191,582.49
TOTALS (lbs/day, unmitigated)	274.23	277.47	2,628.23	7.84	1,538.14	297.28	839,424.90

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 60 Season: Winter

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Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse high rise	78.12	7.95	dwelling units	5,000.00	39,750.00	401,586.29
Quality resturant		89.95	1000 sq ft	96.00	8,635.20	79,374.75
Hotel		8.17	rooms	800.00	6,536.00	59,363.22
Regnl shop. center		42.95	1000 sq ft	384.00	16,492.80	147,989.89
General office building		13.35	1000 sq ft	1,500.00	20,025.00	203,804.44
					91,439.00	892,118.59

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	50.2	0.0	100.0	0.0
Light Truck < 3750 lbs	6.8	0.0	100.0	0.0
Light Truck 3751-5750 lbs	24.0	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.8	0.0	83.3	16.7
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.6	34.6	65.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.3	0.0	92.3	7.7

Travel Conditions

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	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Quality resturant				8.0	4.0	88.0
Hotel				5.0	2.5	92.5
Regnl shop. center				2.0	1.0	97.0
General office building				35.0	17.5	47.5